# GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio

H. H. ROOT, Assistant Editor.
A. I. ROOT, Editor Home Department.
E. R. ROOT, Editor.
A. L. BOYDEN, Advertising Manager.
J. T. CALVERT, Business Manager.

Entered at the Postoffice, Medina, Ohio, as Second-class Matter.

VOL. XXXVII MAY 1, 1909 NO. 9

## EDITORIAL

By E. R. ROOT.

### THE INSIDE PAGES OF GLEANINGS COMING LOOSE.

WE have had a few complaints to the effect that the inside illustrated pages tear out from the wire stitching. Possibly our readers have not noticed that the form containing the half-tone cuts is printed on a different kind of paper, known as enameled book. It is made with the special view of bringing out all the detail in the half-tone engravings. While it gives beautiful effects because its surface is enameled with a special coating, this very fact makes the body that supports it weak. We believe our readers would prefer to have an insert sheet tear out occasionally, and secure finer effects from the engravings, rather than have a poorer quality of printing on a cheaper grade of paper that would not pull loose from the stitches. We are working to remedy the trouble, and hope we may be able to do so later on.

### THE LACK OF NATURAL POLLEN AND THE NEED OF AN ARTIFICIAL SUBSTITUTE SOME SPRINGS.

THE following letter, written by H. G. Quirin, the queen-man, at Bellevue, O., will explain itself:

*Mr. E. R. Root:*—We notice your experience with the bees on account of their eagerness for pollen, on p. 221. This is the first spring since we kept bees when any of our yards really suffered for pollen, and our experience extends over more than 20 years.

As soon as the weather warmed up we visited all our yards, and found that three of them were getting sufficient pollen for their immediate needs, as these three are favorably located as to shelter and forage; but our home yard, and another one just a mile north, had scarcely a visible cell of pollen. We examined twelve colonies at the yard a mile from home, and not a single cell did we find in that number, yet there was lots of unsealed brood. We noticed the bees were removing the honey from the bottom parts of the combs and storing it wherever they found room. We take it for granted that they were after the few cells of pollen which they found there.

We find colonies which were shaken the previous season are leanest in pollen. At our home yard the bees took possession of some old machinery, and went to digging off the hardened oil from the bearings. They also tried to clean out a spring wagon which had coal dust in the bottom. They worked on the dust for three or four days.

For the past eight or ten years we have paid no attention to the supplying of artificial pollen, as it occurred to us that the bees always store sufficient in the fall, and are able to get natural pollen in the spring in time, and in sufficient quantities, for all their needs; but it does seem that in a spring like this, where the fall was dry and the spring flowers late, there will be some yards which require an artificial substitute for the natural pollen, or the bees will suffer, in a measure, as we have noticed that the lack of pollen prevents the expanding of the brood-nest.

All our bees wintered well.

There is only about one year in eight or ten when the bees seem to suffer for the want of an artificial substitute for pollen, and the present year is one of them. It may be wise to have a little rye meal scattered out every spring just before natural pollen comes into bloom to provide against a possible dearth from natural sources. But the trouble is, this artificial stuff is a very poor substitute; and if too much is fed, the bees will be quite inclined to get too much of it packed in the cells, which they can not remove. We have seen combs so full of it that the only thing to be done was to soak them in water for two or three days, them throw out the pollen with an extractor. In feeding this meal or other substitute one must be careful not to give the bees too much—certainly none after *natural* pollen comes in.

### CREDIT TO WHOM CREDIT IS DUE.

OUR attention is drawn to a booklet published by the Frisbee Honey Co., of Denver, Colo., using the matter from our honey-leaflet by Dr. Miller. We gave them permission to use this, providing they gave proper credit. This they have hardly done—at least, no credit to The A. I. Root Co.

On the 18th page occurs a reproduction of a photograph which we took at our Medina apiary, showing Dr. E. F. Bigelow and his big class of schoolteachers, each holding a frame of live bees. They had come to Medina from the Wooster summer school, in this State, 150 strong, to study apiculture with Dr. Bigelow. This picture shows a remarkable exhibit of a lot of men and women who *had never before seen the inside of a bee-hive*, handling bees in an apiary where there were 400 colonies. In the background were the tall evergreens that surround the Root apiary, and at one corner the edge of one of the Root factory buildings. We had not the slightest objection to the use of this picture, but imagine our surprise to find under it this title: "Group of students of bee culture at the apiaries of the Frisbee Honey Co." We immediately wrote, asking for an explanation. The Frisbees replied, saying that they were sorry, but it was an "error," and it would be corrected in the next edition. Very remarkable accident, this, that such a combination of letters and words should get under this cut purporting that the photo was taken "at the apiaries of the Frisbee Honey Co." instead of at Medina!

By the way, one of our correspondents wants to know where the "Frisbee apiaries" are, in Colorado or elsewhere; he says he has not been able to see or hear of them. We have no doubt that the Frisbees can enlighten him unless this also is an "error" or—a joke.

That the Frisbees do an extensive bottling business in Denver, and that they help bee-keepers to dispose of a large amount of honey of good grade and quality, is not denied; but they should see to it that these "errors" or jokes do not occur in the next edition of their booklet. And while they are about it we would appreciate it if they will leave out an old letter of ours, from which

the date is omitted, written some years ago, and referring to a different set of conditions. While we do not question the purity of their honey, to use an old letter, as if it were something recent, is hardly fair to the writer—at least without his consent.

### OUR ALSIKE BOOKLET.

DESPITE the fact that alsike clover has been grown in this country for many years, it is practically impossible to get any thing in books relating to its culture; yet it is well known that in our cities the highest-priced hay is a combination of alsike and timothy. It is surpassed by no plant as a yielder of fine honey, except, possibly, white clover, which it much resembles.

In view of this we have just published a booklet which consists of excerpts from the farm journals relating to the culture of alsike for hay or for seed. These are all written by able and successful men, so that the subject-matter is absolutely reliable. To our subscribers the booklet is free for the asking.

### HOW TO SHIP CARLOADS OF BEES SO THAT THEY WILL ARRIVE IN GOOD CONDITION.

The following telegram was duly received:

Am shipping car of bees to Idaho. Would you use refrigerator? If so, would you use ice? Answer fully at my expense.
Longmont, Colo. M. A. GILL.

We wired back as follows:

Common box car. Important for man to accompany. Pile ives so he can spray each wire screen with water when bees get hot.

This telegram was followed up by a letter which we give here also:

Should, for any reason, the shipment be delayed, we should like to explain that it is very important to spray the tops of the wire screens when bees get to clustering on the wire cloth too closely, and that the hives should be piled far enough apart to provide a free circulation of air. There should be an aisle clear through the car, so that a man can get at each individual hive. If any one particular colony gets too warm, and clusters too closely on the wire cloth, it can be sprayed. If the car is to pass through a hot country there ought to be wire cloth at top and bottom; but wire cloth for the top only will be sufficient for the journey you are to take. When the car goes over the mountains there will be no danger of the bees getting too warm; but the constant jarring may stir them up and get some individual colonies excited. Those should be cooled off with water. A little hand force pump, with several square cans containing water, ought to be taken along. A common watering-pot may answer in place of a force pump.

We sent two carloads of bees to Cuba some years ago, and did not lose a colony, and scarcely any bees; but had we not used the water spray we would have lost over half the bees. It is wonderful how the water will give the bees relief.

A refrigerator car is not necessary, and we would not advise taking along ice, since it may be too cool in the car. Water will answer better. E. R. R.

As others may be expecting to move a carload of bees, the suggestions here given may prove helpful. If any one of our subscribers who has had considerable experience in shipping bees has any thing to offer on the subject, we should be pleased to hear from him.

### PURE LEAD AND OIL AS A PAINT FOR HIVES.

ELSEWHERE in this issue Mr. E. D. Townsend emphasizes the importance of using pure lead and oil as a paint for hives. In more recent years many of the mixed-paint companies have advocated putting small percentages of zinc in with the lead. But zinc makes too hard a coating, and in our locality it cracks off, while a pure lead and oil leaves the wood in fine condition for another coat of the same material if a part lead and part zinc paint be used, there is almost sure to be flaking in a few years; and this paint will come off in large or small patches, giving the surface a very uneven smallpox-like effect.

Bee-keepers should be very careful of whom they buy their paint. The national pure food and drug law does not assess any penalty for selling an adulterated paint. The average dealer will tell you, of course, that what he has to sell is the best paint there is in the market. Ask any good painter, and he will tell you what brands are reliable.

### A BEE-KEEPERS' BIG CATCH.

MR. M. H. HUNT, of Lansing, Mich., has been spending the winter in Florida. He told us once that he had the ambition to catch a large alligator, and accordingly in April he and his brother caught one big fellow 13 feet long with hook and line. He writes that they had "an awful fight to bag him," but now they have him in a good big strong cage. There are a good many alligators; but such large ones as this are very unusual, and therefore the Hunts are very proud of their big catch. They do not propose to kill him; and if they can not dispose of him to some park or museum they will liberate him.

At one time M. H. Hunt kept bees quite extensively, and later on he and his son went into the bee-keepers' supply business at Bell Branch, near Detroit, Mich. The senior Hunt is well known throughout all Michigan, and used to be quite a prominent figurehead at the conventions, both National and State.

In later years the mantle has fallen on his son Elmer, who is the junior member of the firm of M. H. Hunt & Son, of Lansing, Mich. During winter, the senior member is "turned out to grass" in Florida, like our own Mr. A. I. Root. Long may they both live.

### ARE THERE MANY APIARIES IN THE UNITED STATES WHERE 700 COLONIES CAN BE KEPT IN ONE SPOT?

MR. ISAAC F. TILLINGHAST, on page 267, this issue, has an excellent article on improving our bee pasturage. But he makes one statement which we fear may be misleading. In referring to the remarkable locality at Delanson, N. Y., where the late E. W. Alexander kept some 700 colonies with an average yield of 100 lbs. per colony, our correspondent makes the statement that he does not believe that this surprising yield was due to locality or to any special environments; that a careful study of the surroundings shows nothing unusual or different from thousands of other localities.

Some three or four years ago we spent some two or three days at the home of Mr. Alexander, during which time we were convinced that he not only had a remarkable locality, but that he was an extraordinarily good bee-keeper as well. In other words, we do not believe that if he were alive to-day he could run 700 colonies in 95 per cent of the localities of the United States, either north or south. The vicinity around Delanson starts off with ordinary fruit-bloom; this is followed by the white-honey flow from basswood and clover; and next comes the main or

heavy flow from buckwheat, the goldenrods, and asters. The furious way in which the Alexander bees poured into the hives during the height of buckwheat bloom was something wonderful. We never saw the like of it in any apiary in the United States, and we believe we have traveled more miles visiting bee-keepers than any other man in the country. Outside of California, Texas, and Cuba, we do not believe that there is another State in the Union that can furnish such conditions, and there are only a few spots in New York State. In saying this we do not mean in any way to lessen the glory that is due to Mr. Alexander for his skill and success in producing as high as 75,000 lbs. from a *single yard in one season*. Such a big yield from so many colonies all in one spot is very extraordinary; and the average reader should not get the impression that he can achieve the same results in other localities providing he has the requisite skill, and knowledge of the business.

---

### THE SPRAYING SEASON; THE ATTITUDE OF UP-TO-DATE FRUIT-GROWERS.

For most localities we have arrived at what is known as the "spraying season." Every progressive fruit-grower and bee-keeper, at least, knows that fruit-blossoms should *not* be sprayed while they are in *full bloom*. The spraying mixture should first be applied when the leaves are unfolding; then after the trees come into bloom there should be no more spraying until about a week *after* the petals fall. To spray during bloom means the destruction or injury to the blossoms themselves, and a serious injury to the bee-keeping industry, for there is no denying the fact that many bees are destroyed every year by a few ignorant fruit-growers who do not understand the first principles of spraying, and, what is more, they are too shiftless or too much prejudiced to find out.

So far as we know, all the experiment stations and all *progressive* fruit-growers over the country generally tell us not to spray while the trees are in bloom. Carefully conducted experiments at the various stations have shown that many of the spraying-fluids destroy or injure the delicate parts of the blossom. From the standpoint of his own interest, even if he has no interest in bees, the up-to-date fruit-grower will refrain from the practice. Yes, and he knows that the bees are his best friends. Even if the blossoms would not be injured, he would not for a moment think of doing those same little friends an injury.

Some spraying-fluids are not poisonous. Take, for example, the lime-sulphur washes, the kerosene, and other emulsions of crude oil; but even these should not be sprayed when the trees are in bloom. Hellebore, or any of the Bordeaux mixtures, especially if they contain Paris green or any of the arsenites, will be poisonous, of course; such fluids are too strong for the delicate pistils and stamens of the flower.

Spraying is practiced to kill the fungi and injurious insects. The codling moth that is responsible in the main for wormy apples lays its egg in the bark of the trees. As soon as the larva hatches, it seeks out the blossoms about the time the petals fall and begins to burrow into them. If they have a coating of poison it dies before it can do any mischief. Otherwise it makes its temporary home in the maturing fruit.

The average manufacturer of spraying-outfits usually gives directions for making the spraying-liquids; and so far as we know there is only one who advocates spraying when the trees are in bloom. We respectfully suggest that our subscribers investigate the catalogs very carefully, and be sure that they do not buy from parties who give such advice. We do not usually advocate the boycot, but we do think in this case that it is entirely proper to — buy of the other man.

---

### UNCAPPING-MACHINES USING OSCILLATING KNIVES.

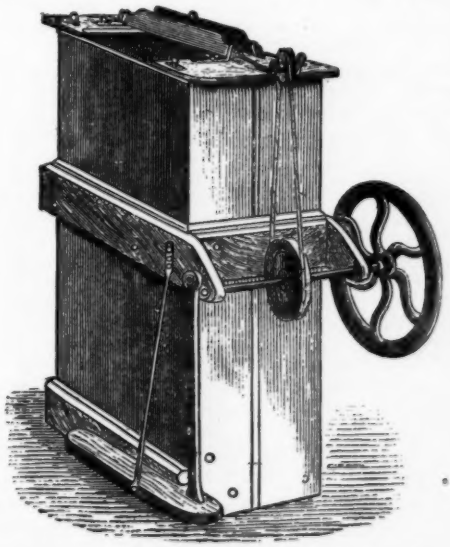
In our last issue we promised to give the original cut and the description of the Simmins' machine that appeared in the *British Bee Journal* for April 8, 1886, and here it is:

SIMMINS' UNCAPPING-MACHINE.

The first principle of this machine consists in its having two oscillating knives, which, driven by foot power, have a reverse motion, while the comb is passed down between them by the operator, and the cappings are removed from both sides at once, in the quickest manner possible. These drop into the upper can, which has a strainer at bottom, through which the honey drains into the lower vessel, where it can be drawn off by a treacle valve. An invaluable feature in connection with the knives is that, at the recommendation of the manufacturer, Mr. Meadows, of Syston, the edges are serrated, thus making them absolutely perfect for this particular purpose. Between the knives, at either end, are guides arranged to take the end rails of the frame, keeping such in position while passed through by the operator.

The lower and upper cans are readily parted for the purpose of cleaning; and all the parts can be renewed if necessary. The knives shou'd be returned to the manufacturer for sharpening when needed, though this will be seldom, as their peculiar construction enables them to stand a large amount of work.

It is not intended that the machine may be of use for odd combs from the stock chamber. I do without such unnecessary disturbance, but where any number of colonies are run for extracted honey, the upper combs should all be finished between dividers, and then they may be rapidly passed through the uncapper before going into the extractor; and even where the uncapping-knife will still be used, the rapidity of manipulation will amply repay any extra cost in furnishing upper stories with dividers.—S. SIMMINS, *Rottingdean*.



Whether this will antedate the Miller patent for a similar machine we are not prepared to say.

# STRAY STRAWS

By DR. C. C. MILLER, MARENGO, ILL.

THAT PICTURE of J. E. Crane standing on a *paper* shipping-case looked just a bit faky. But after I got one I found I could do the stunt myself without any cane. J. E. is O. K. [Yes, it is a fact that these paper cases will sustain more vertical pressure than the wooden ones. It is largely because of the inside corrugated partitions that are higher than the sections. It is the partitions that support the weight, and not the sections.—ED.]

THAT SHAKING UP in early spring is getting me all tangled up. When the brood-nest is clogged with honey or pollen, shake to get the bees to move it out of the queen's way. Then when there's all the brood the bees can cover (pretty much always the case here), shake to get up extra heat to enlarge the brood-nest. Then when the extra heat from that shaking cools off, shake again lest the cooling chill the increased brood. Now, in such a case how many shakings in 24 hours would be about the right thing?

BEES were taken from the cellar April 5; had a fine flight; temperature 75. April 10 was bright and still. At 9 A.M. a bee here and there was flying, with thermometer at 32 in the shade! At 33° there was a very little flying at 18 out of 84 hives facing east, and at 3 out of 70 facing west. At 36° (11:10 A.M.) there was a little stir at 26, east entrances, and at one west entrance (I counted just as I walked along; if I had gone more slowly the count would have been greater). At 39° (12:45) bees were out at 24 east entrances and 13 west. At 40° (2 P.M.) bees were out at 20 east entrances and 35 west.

"CELLARED BEES, at the time of taking out, will usually not have as much brood in the hive as the bees that have been in double-walled hives outdoors all winter," p. 221. Isn't that putting it pretty mildly? Cellared bees don't start brood much before taking out. Outdoor bees will start brood in February, sometimes in January, whether in double-walled hives or single. Some say that the reason for the difference is that there is greater heat in the brood-nest outdoors than in cellar. The colder the weather, the greater the heat must be in the *center* to keep the temperature of the whole above the danger-point. [We are not sure that your explanation is correct. As to the ratio of the amount of brood between cellared and outdoor bees, perhaps we did put it a little mildly. Much, however, will depend on the kind of cellar, its temperature during winter, and whether or not the bees have been given an opportunity for flight during midwinter.—ED.]

THAT CRANE shipping-case of paper—doesn't look so pretty as the old case. You can't make as fine a show with such cases piled up as you can with wood-and-glass cases. In making a big pile, or loading a car, it is not quite so easily handled, and won't pack quite so smoothly; will take more time to fill sections into the little compartments. After a case is filled it will take longer to tie up than to tack on a wooden cover. Those are the objections that seem possible. No other objection occurs. On the other hand, we have "a lighter, stronger, cheaper case." Then the item of safety. That is a big item; for those who have not been able to ship without much breakage, an immense item. A single case or any number of cases may be shipped without fastening in a car, and without the heavy expense of carriers. Some may pack a carload of the old kind so as to travel in safety. Even then, it must be handled in smaller lots when it comes into the hands of the jobber, and then the greater safety of the paper comes into play. [You have presented really only one argument that will have much weight with the bee-keeping public; and that is, that the new corrugated strawboard shipping-cases do not look nearly as well as the wood-glass containers, and, of course, do not show off the honey as well. The retailer can, if he prefers, have the wooden cases for display purposes, and order all his comb honey shipped in corrugated-paper cases. Comb honey would have a much larger sale if it were not for the annoyance and breakages during shipment, and on express and dray wagons. —ED.]

CONFLICT BETWEEN F. H. Cyrenius and the editor, page 253. One says it is the general practice to take bees from the cellar "in nice warm weather;" the other, "When the temperature is at or near the freezing-point." In this locality it must be warm enough for bees to fly—never otherwise. I wouldn't say offhand that freezing weather might not be better; but there are some things to think about before deciding. Bees stirred up at 32° might fly out and a lot be killed. If taken out when freezing weather they might hold at that or cooler for ten days or more, and that would do a big lot of harm. That chance would always be. Might work all right for two years, and work disastrously the next time. I'd like the comfort of taking bees out when they will not fly, but would first like to know how generally it has been successful with others. [There is no conflict between the editor and F. H. Cyrenius as to our belief regarding the best practice; but there is a difference of opinion, however, as to what is the practice of others.

The real conflict is between F. H. Cyrenius and ourselves on one side and your practice on the other. Something will depend on whether there are some bees already in the yard when the second batch is set out. The first lot are quite likely to rob the others if they are put out when all the bees can fly. All things considered, we much prefer a cool atmosphere. Carrying bees out of the cellar disturbs them more or less. If it is too cool for them to fly, they will quiet down; and then when they do come out after the weather has warmed up, there will be less of confusion. The late E. W. Alexander advocated taking *all* the bees out toward night, when it is a little cool. He found, by dearly bought experience, when he set the bees out in two or three different lots that those first set out were almost sure to rob those that came later. To set the bees out on a warm day causes general confusion; the strong are apt to draw from the weak. If there happens to be a heavy wind it is liable to force the great bulk of the flying bees toward the leeward side—that is to say, the colonies on that side would get a larger quota of bees. Mr. E. D. Townsend has had some experience of this sort.—ED.]

# BEE-KEEPING AMONG THE ROCKIES.

By Wesley Foster, Boulder, Col.

### A SEVERE WINTER FOR BEES.

No winter for the past ten years has been so hard on bees as the past one. One thing is assured, however, and that is, plenty of water for irrigation. As I look up at the snow-capped range each morning I imagine that whiteness transformed next August into snow-white cappings on thousands and perhaps millions of sections of comb honey.

### CANDIED HONEY IN THE HIVES.

It is now generally acknowledged that sweet-clover honey candies much sooner than alfalfa. A large proportion of the honey gathered last season was sweet-clover honey, and there is much candied honey in the hives as well as on the market. Many colonies have starved with this candied honey in the hive, the winter being so severe that no water could be secured to work it over with.

### HONEY IMPORTATIONS.

Are those figures correct as to importations of honey, page 189, April 1? I have been watching *Thomas' Weekly Review*, which gives the receipts of honey at New York harbor only. The reports come each week, and the lowest figures I have seen for one week were 281 bbls., 60 tierces, and 9 crates. For the week ending March 22 there were 468 bbls., 63 tierces, and 25 pipes. At the least figuring that would be 180,000 lbs. for one week and 250,000 for the other. At this rate New York would receive from 8 to 12 million lbs. a year as against Dr. Phillips' figures of 2½ million for the receipts of all the custom ports of the country. [The honey *imported* at New York is mostly *exported* to Europe, mainly going to Hamburg. In this case the duty is refunded. See elsewhere what Mr. Steengrafe says.—Ed.]

### EXTRACTED HONEY OR HONEY IN GLASS.

Many a customer, unless you take time to explain, has a hazy idea of what extracted honey is. It is classed with extracts, mixtures, blends, etc. A grocer told me he supposed extracted honey was sugar syrup or glucose flavored with extract of honey, whatever that meant to him. When one can explain to the customer, it is all right; but honey is handled by people who are not familiar with the methods of production, and they are situated where we can not reach them all. "Honey in glass" seems to be the best name for bottled honey, and carries the idea without bringing in that disreputable word "extract." "Strained honey" is the term in most common use; and while it is not technically correct unless applied to "strained honey" only, it is better, so far as the mental conception goes, than "extracted honey."

### FACING COMB HONEY.

A good many bee-keepers turn the sections in the face of the case upside down from the way they were built, to get a more pleasing and even appearance. The turning over of the facers hides the travel-stain and more uneven filling of the bottom of the sections to a greater extent than if right side up. The reason for this is that nearly all the cases we look at are below the level of the eyes, and so we see the honey along the lower half of the glass. There is one way of getting a still more even finish; and that is, by turning the facers down on their sides. This hides the sides of the sections which are more poorly filled than the top and bottom. The objection to either of these practices is that the honey leaks out of the open cells on the edges, and streaks the comb and often the glass. For this reason it is best not to do it unless the honey is thoroughly ripened and will not run from the open cells.

### INTER-STATE FAIR.

We should all be proud of our work as bee-keepers, and no one thing brings us more pleasure than to have our efforts appreciated. The reason that our product often meets with no commendation is mainly because we do not put it where it can be seen. Those who are proud of their work are preparing to make exhibits at the Colorado Inter-State Fair to be held in Denver, Sept. 12—18, 1909. Thousands attend these fairs, and a good gate fee is charged, so all have their eyes open, and appreciate what they see.

The management of this fair offer very liberal premiums, and the apiarian department had the choicest location in the Horticultural Building last year; and the probability is that the same space will be secured this year. Send to Mr. W. L. Porter, Sup't Apiarian Department, 3522 Alcott St., Denver, Colo., for premium list and entry-blank.

### WHICH IS THE TOP OF A SECTION?

No word can I find in the supply catalogs on the proper way to place the section in the super for the bees to fill. I have always placed the joint up and will now give the reasons why I think it the proper way to place in the super. 1. The joint is in sight; and when removing from the super the danger of the section pulling apart can be seen and guarded against. When the joint is down, the projecting ends of the dovetails will catch on the section next to it and pull out. The propolis also holds very securely at times.

2. When the joint is up, the bees can get at the joint and fill up with propolis, if a quarter-inch space is over the sections as it should be. The joint is the weakest place in the section, and should be where any breakage can be guarded against.

The reasons that some bee-keepers have for placing the joint down are these: 1. The two corners for the top should be alike; and the joint being unsightly it is placed at the bottom; 2. When lifting from the super the joint is strained severely—more so than if at the bottom. This is not the case if my experience is like that of most bee-keepers; 3. When placing only one starter in a section the section has to be turned over (after being folded) for the placing of the starter on the joint side. This has reference to the Rauchfuss section-press and foundation-fastener. I should like to have the opinion of others on this.

# NOTES FROM CANADA

By R. F. HOLTERMANN.

### HOW BEES HEAR.

Some argue that bees do not hear, but that they have means of recording the jar of the atmosphere. In what other way do *we* hear?

Say, Dr. Miller, I will confess that your statement on page 122, March 1, surprises me—that "queenless bees will build worker comb *if weak* enough." I should like a little more detail in regard to this.

J. L. Byer, page 92 of the March issue of the *American Bee Journal*, writes: "No matter how important the nature of the repository for wintering may be, the quality of the stores is still *more* important." Mr. Byer is certainly correct; but the quantity of the stores is important too.

### AN UNUSUAL AMOUNT OF STORES CONSUMED.

Our bees have used during the winter an unusual amount of stores; in fact, some fifteen colonies starved. I attribute this to the great variation of temperature due to our very changeable winter. At this date, April 5, all but five of my colonies are on the summer stands.

### TWO CORRECTIONS.

The press misrepresented when they said there were found 116 samples of Canadian honey, as I reported in the April 1st issue. It should have read 16. I wrote the Department of Inland Revenue, and they gave me the above information. The record as to returns from an apiary was not that of Morley Pettit, but his father, S. T. Pettit.

### PROVIDING PERMANENT MEANS FOR COMMUNICATION THROUGH THE CENTER OF COMBS.

Why use a whole inch of space for a central opening in a comb, page 181, March 15, when a much smaller space would be required if a tin tube were used having the same size of opening? Mr. Hayes makes an exceedingly valuable suggestion. Box hives, so far as free communication is concerned between all the combs, have a great advantage over our modern straight combs. Mr. S. T. Pettit always opened such passages in combs. Many years ago he had an opening in the side of the hive, through which an iron was passed, which, when pushed in, cut a hole in the same place through every comb.

### CHEAP TOOLS AND CHEAP HIVES.

E. D. Townsend, page 160, March 15, says that a common mistake that most beginners make is to buy small or cheap tools and hives. Yes, a beginner, because of his inexperience, is very likely to choose a small cheap smoker because he has but a small number of colonies. Again, many are contented with any old hive and frame, only to learn afterward that in so doing they were penny wise and pound foolish.

Mr. Townsend further says that he thinks the main reason why the eight-frame hive is more universally used than the ten-frame is that the first cost is less, and then those who start with the eight-frame hesitate to make a change. I should say that the first reason for the extensive use of this size of hive in the past has been that it was generally advocated. The second reason I would give is that it costs less. The third is that many do not yet know of any thing better. I once heard a bee-keeper, who had the eight-frame hive, ask what he should do with those hives when he changed over to larger ones. The reply was, "Sell them to greenhorns."

The note of warning, cautioning all beginners to start on a small scale, is good. I have had quite a number of opportunities to sell a large number of colonies to beginners; but my advice has always been, "Don't begin with more than two or three."

### CLEANING HONEY-CANS.

Allen Latham, page 130, March 1, suggests the use of boiling water for cleaning honey-cans. This is a good suggestion, for the heat soon dries the tin. After a can has had a judicious shaking there is no more water left in it than will evaporate in a very short time, if the cans stand in the hot sun with the openings at the top.

Mr. Latham advises filling the cans completely with honey. This advice, however, may lead to trouble in liquefying, as there is considerable expansion when the honey is heated, and much of it will flow over the top and be lost.

A thin coat of honey on tin, if left for some time, will often give a dark color to the water used in washing it, and I have attributed this to the action on the tin of the acid in the honey, in conjunction with the air. It may be, however, that this occurs only when the iron is not perfectly covered by the tin.

### FAILING QUEENS.

Dr. Miller, on page 122, March 1, writes: "Last year a good many of J. E. Crane's best queens failed in May." The doctor then says that his own queens are superseded before there is any noticeable failure, and he asks whether it is a question of locality. The editor can not see what locality has to do with the matter, and suggests that the difference is caused by the difference in the strains of bees. However, for years I have believed that locality has had something to do with the superseding of queens. The first time that I saw bees in a buckwheat territory at C. W. Post's, Trenton, he showed me in September eight colonies where the old and young queens were laying at the same time. Observation and experience have led me to think that, where there is a good fall flow, supersedure is more likely to take place. I am inclined to think that, when a queen fails in May, without being superseded, either the colony has not wintered well, and the queen has suffered with the other bees, or the stores are bad.

---

### INFORMATION WANTED CONCERNING BEE-KEEPING IN MAINE.

For several months I have read with interest the articles published, but I find nothing in regard to bee-keeping in Maine.

Phillips, Maine. C. M. HOYT.

# GLEANINGS FROM OUR EXCHANGES.

By W. K. Morrison, Medina, O.

### SOOLA CLOVER.

That splendid publication, *The New Zealand Farmer Stock and Station Journal*, in its March number gives two fine illustrations of soola clover. One is taken from a stem which grew two feet in two weeks. For the South this is an exceedingly valuable plant, producing a crop of the very best fodder—something our Southern States are much in need of. It grows in England, but would hardly succeed in Ohio or West Virginia. It is cut twice a season, and will give about ten or twelve tons to the acre if well cared for.

### ALSIKE CLOVER.

One of the most difficult problems in connection with agriculture is the introduction of new plants. Farmers as a rule are very conservative and doubtful about a new thing. In this connection it ought to be known that Samuel Wagner, of the *American Bee Journal*, was the first man in America to press the claims of alsike clover. He kept up his agitation for years, and it is only of late years that the bee-keepers have begun to get the reward. It will stand a good deal more advertising, and it is the bee-keepers who should do it. It will grow over a wide extent of country, north, south, east, and west. One of the best reports we have ever seen on alsike was from Tonnar, Mississippi.

### THAT NEW CLOVER.

Already we have a report of the new clover known as shaptal. It is by Albert F. Etter, of California, in the *Pacific Rural Press*. Here is a part of what he says:

Like that of most clovers, the seed is a quick germinator. The young seedlings endure the frosts of winter here, but do not grow much until the warm days of spring arrive. When sown in the spring it develops rapidly and attains a height of about three feet. I believe, though, that under more favorable conditions it would grow somewhat taller, for it is a rank grower. The size of the stems would astonish one by their apparent coarseness; but they are, nevertheless, tender and succulent, like a peavine, even though they be nearly half an inch in diameter.

In this shaptal clover I believe we have a promising thing for California. The plant is very nutritious if desired for feeding, and the texture of the plant should make it desirable for a green-manure plant; but, what is a question of still more importance is, Would it make its growth early enough in the season for orchard purposes? On farming lands where it could be left to make a more mature growth it might be valuable. If it will thrive well, the ease with which the seed could be grown and harvested would make it a popular plant.

### BUYING FLAVOR BY THE CARLOAD.

One of the features of the past maple-sugar season was the heavy purchases by the glucose trust. The syrup thus bought is to be used in giving flavor to glucose, which has no flavor of its own. It is said that the amount bought in the Western Reserve of Ohio alone for this purpose alone was 35 carloads.

At first sight this would seem to be a good thing for the maple-syrup men, but they do not so regard it. They say pressure is applied to keep the price down to the lowest figure, thus discouraging the growers. Standard Oil methods are used in bearing the market, hence a good deal of discontent. But, what is worse, the value of the product is largely lost in flavoring glucose ten times greater in quantity than the maple syrup. That is to say, the maple syrup bought in the Western Reserve alone will probably be used to flavor 350 carloads of tasteless glucose.

### AUSTRALIAN IRRIGATION-WORKS.

The Australians are not slow to copy American ideas. Under the leadership of Mr. Elwood Mead, who used to be chief of the United States Reclamation Service, they are doing great things. They have one immense project now under construction, known as the Barren Jack Dam, which will reclaim 1,500,000 acres of fertile soil under a sub-tropic sun. This will offer great opportunities for bee-keepers. Mr. Mead has been teaching the farmers the American way of handling alfalfa. They say they will keep him in Australia.

### LOCUSTS AS HONEY-YIELDERS.

A bee-keepers' association in Belgium has purchased about fifty acres of land which will soon be planted in acacia-trees (black locust). Their intention is to discover the actual honey-yielding value of the locust by a decisive test lasting for years. Acacia, as it is called in Europe, is very highly appreciated as a honey-yielder, and the quality is considered to be of the highest. It has been so extensively planted in some parts of Europe that its honey is common in the local market, where it commands a relatively high price. There is some chance that the black locust will again come into prominence as a forest tree in the United States, its native country. The early settlers of Ohio, Indiana, and Kentucky ruthlessly slaughtered these trees for fencing, so that it was the first tree to go. It has been proved, however, that it will pay well to grow them for timber right in Ohio, where land is dear. The only obstacle is the locust-borer; but, luckily, this pest is not serious in some localities.

### RECLAIMING THE WET LANDS.

Gleanings has had a good deal to say anent the policy of reclaiming the arid land by means of irrigation-works designed and constructed by the engineers of the federal government, while but little or nothing has been said about the reverse of this policy, namely, the reclamation of the swamp lands by means of drainage.

Steady progress is being made, however, in reclaiming our overflowed lands, more particularly in Florida, where powerful dredges are cutting canals or openings to let the surplus water run out of the glades into the ocean. It is intended to open a number of such watercourses from Lake Okeechobee to the salt water, and in time to reclaim a territory as large as Connecticut, and much more valuable from an agricultural point of view. It is so far south that even mangoes, pineapples, avocadoes, limes, soursops, bananas, and similar fruits do well. The work is being paid for by the State government; but Uncle Sam ought to help as he does in the West. It will help bee keeping.

# CONVERSATIONS WITH DOOLITTLE

AT BORODINO, NEW YORK.

## AMONG THE BEES IN SPRING.

"Mr. Doolittle, will you not tell us something of the way you manage your bees in the spring? Remember that there are a whole lot of novices among the GLEANINGS readers every year, and they want to know something of the details of things; so tell us about this in such simple language that we can all understand."

So writes a subscriber.

After the bees are set from the cellar, or those wintered outdoors have had their cleansing flight, the first thing to do is to get each hive in as good condition as possible for the comfort and prosperity of its occupants. I begin at one side of the apiary, which should always be at the first hive on the first row having the entrance facing away from the main apiary. If the hives face south, which, in my opinion, is the best way, and if there are ten rows of hives running east and west, then the first hive to examine is No. 1 on row one, which will be the hive on the southeast corner of the yard. The bees of all colonies, no matter how peaceable, are very likely to resent any moving object in front of the hive within an hour after their home has been "broken open;" and if we should commence at the northeast hive, instead of the one spoken of, we should be more or less within the range of the flight of the bees from this hive when we left it to work with the next and succeeding hives. Nothing so annoys the bees and delays their work as some moving living thing right in front of their hive and in line of their expected flight. Fully one-third of those interested in bees who come to visit my apiary place themselves right in front of the hives, and stand there till the discomfiture of the bees on the wing gathered behind them compels me to request them to move.

We are now at hive one on row one, and about to open it. We first send in a very little smoke at the entrance, to "throw the sentinels off their guard," when we carefully take the cover off and blow a little smoke over the tops of the frames, keeping our eyes on the bees, and using only enough smoke to keep them from becoming vicious. Some colonies require very little, while others need smoking quite often; but we never smoke their little eyes full when they are as peaceable as kittens, nor, on the other hand, do we allow some colony to drive us from the apiary because we are afraid of hurting their feelings by using sufficient smoke to keep them subdued

Having the hive open, first see to the amount of honey in the combs. At this time of the year there should be not less than ten pounds, and twenty pounds would be better. Then look and see if there is brood, thus showing the presence of a queen; however, if the colonies have but just been set from the cellar they may not have started brood-rearing yet. Next see that there is not a lot of dead bees on the bottom-board to decompose there, much against the health of the colony. Lastly, close the hive, making the top and all about it as snug and tight as possible, so as to help the cluster to keep dry and warm till the willows and hard maples bloom. Go over each hive in this way, and as you ascertain the strength of the colonies adjust the entrances to each hive to suit each one, allowing three-eighths of an inch in length of entrance for the weakest, and three inches for the strongest, varying the length as needed.

Now, after forty years of bee-keeping, during which time I have tried nearly every thing put before the public for stimulating brood-rearing, from the feeding of a thin sweet, every day, to the spreading of the brood, I wish to say that, if colonies are in the condition noted above, I do not believe that one can do any better than to let them entirely alone till pollen becomes plentiful from the soft maples and elms (and I doubt the wisdom of touching them further till honey comes in from the willows), and honey and pollen from the hard maples, the white and golden willows blossoming only two to four days before the maples. When the blossoms on these trees open, it is time to commence active operations with the bees, which, in brief, is as follows:

Go over the apiary again, commencing with the first hive on row one as before. This time look for the queen to see if her wings are clipped. If she is found not clipped, take out a jack-knife, the little blade of which has been made as sharp as a razor for this purpose, and, holding the frame upon which the queen is found with the right hand, pick the queen up carefully with the thumb and fore finger of the left hand, by taking hold of her wings. Set the frame down and place the sharp edge of the knife-blade on the queen's wings held between the thumb and fore finger. Both hands are now to be lowered to within an inch of the tops of the frames in the hive, when the knife is carefully drawn a little, and the queen falls wingless on the frames, between which she runs down as if nothing had happened. Having the queen's wings clipped, the brood is inspected; and if it is found regular and compact, we know that she is a good one; but if scattered in several combs, with many cells mixed in containing no brood, then we may mark that hive as having a failing queen, and, as soon as possible, we procure another for it by killing the old queen and uniting a weak colony having a good queen with the queenless colony, or by sending away for a queen to take her place. If the brood is all found to be in one end of the combs, it is well to change ends with a part of those combs, thus providing conditions for a profitable colony later on. I have also thought it paid at this time of the year to "jump the brood," i. e., place the outside frames of the brood-nest in the center and the center frames at the outside, so that those frames having the most sealed brood in them are on the outside, and those having the least on the inside. This causes the queen to fill immediately these empty cells, while at the same time a larger amount of eggs is laid in the two frames outside of those having the most brood in them, thus making a gain in bees *just in time* to take advantage of the harvest from white clover when it comes. Then, after seeing that there is plenty of honey in the hive, so no retrenching of brood is likely to occur, the hive is closed, snugly and warmly, as at the other time. Thus we proceed over the whole apiary again, which accomplishes all that can properly be called *spring* work.

# GENERAL CORRESPONDENCE

## IMPROVING OUR BEE-PASTURES.

### May we Profitably Increase the Production of Honey by Aiding Nature, or by Making Artificial Bee Pasturage? the Great Value of Sweet Clover for this Purpose.

BY ISAAC F. TILLINGHAST.

A homely old adage says, "There are two sides to every plank;" yet from my observations I am convinced that very many bee-keepers are so near-sighted that they see but the upper surface of the foundation upon which their living depends.

A question which I have not seen much discussed in the bee-journals, yet which I think worthy of much thought and study, is whether the ordinary number of bees kept in most localities, or, to make it more personally interesting, whether the number of colonies kept in your neighborhood gather and save from loss or waste all the nectar which is naturally supplied; and even if decided that they do not, yet could not more bees be profitably kept, and more honey produced by aiding nature, by supplementing or increasing the pasturage artificially?

For nearly fifty years I have been a bee-keeper, and have studied the business in all its phases in my own locality. Recently I have traveled quite extensively, visiting many honey-producers in several States, in order to make a study of locations, and after comparing methods and results in different localities I am persuaded that, while there are very few who have colonies enough to save from waste what nature already supplies, there are still fewer who could not profitably increase their pasturage to such an extent that they might correspondingly increase their harvest whether they increase their number of colonies or not.

Probably there are thousands of bee-keepers scattered over this country who keep perhaps from ten to fifty colonies each, and which give them annually but 25 or 30 pounds of surplus, who think that their bees are giving them about all that is to be obtained within their range, and that no more could be stored, either by increasing the number of colonies or by making use of improved methods in handling those they already have.

To show the fallacy of this thought I need only cite the case of Mr. Alexander, who by his up-to-date methods has for several years kept from 700 to 800 colonies in one yard, and caused them to produce an average of nearly 100 pounds per colony each season; yet he told the writer but a short time before his death that he believed a large amount of nectar annually went to waste within the reach of his bees.

In one of his best seasons an aggregate of 73,800 pounds, or nearly 37 tons, of honey was harvested within a radius of distance covered by the flight of a bee, whatever that may be. That this surprising yield was due to locality, or to any special environments, outside advantages, or aids to nature, I do not believe, for a careful study of his surroundings shows nothing unusual or different from thousands of other locations in which little or nothing is saved. If it is due entirely to the man and his management, then many of us must admit that we are not living up to our opportunities, and at first it would seem to show that our "plank" really has but one side, and that nature is already abundantly supplying the nectar for all the bees that we may desire to keep.

But now let us look for the other side. On a visit to Mr. Salisbury, who resides right in the city of Syracuse, N. Y., he showed me two hives from which he has taken 532 pounds of surplus the past season, and surely his location would naturally be much poorer than almost any spot outside of a city. But looking over the ground there, what do we find? Vacant lots and parks all around that city are covered with a rank growth of sweet clover which commences to bloom in June, and keeps at it until frost. Whether this came about by accident or design I can not say; but certain it is that it is an enviable position for any bee-keeper, and one which might easily be imitated; for when once started this plant readily seeds itself and spreads with great rapidity, and we can scarcely imagine a locality where there are not many vacant strips and corners which might as well be growing sweet clover as other weeds which are not honey-producers.

But does nature produce an abundant and *constant* supply, even in the most favored localities? She surely does not, and this is the point we wish to bring to light. This is the other side of our plank. While it is true that there are times when 800 colonies can not save all the nectar which is formed within their reach, it is equally true that there are other times, between these flows, when not enough can be found to keep even one colony busy, and then is the time that it surely would prove profitable to supplement the natural supply; for does not the laborer who works full time bring home a fatter pay-envelope than he who is laid off four days in each week? The foundation idea in working for the greatest success in bee-keeping is this demonstrated fact, that honey-flows are much more abundant, but of much shorter duration, than most people suppose. It is a glaring case of fleeting opportunity, and can be taken advantage of only by maintaining the strongest possible colonies, teeming with almost millions of willing workers, and seeing that they are fully supplied with empty storage combs at the very moment that they are needed; for if the bees must stop to build combs to-day, while perhaps the supply of nectar is unlimited, by to-morrow it may all have evaporated, passed away, only to return at intervals, and that opportunity is gone forever.

All cases of opportunity are confined to the present moment, and must be acted upon *now*, so we should never wait for the next one to appear, but see if an important one may not already be passing.

Starting now with an idea of taking advantage of the knowledge above imparted, our first care must be to see that our bees are properly wintered and kept in condition to start early spring breeding in time to produce workers for the first

spring fruit-blooms. Their ability to do this will depend largely upon the quality of their queen, and close study is necessary in order to determine her comparative value, as some will forge ahead with remarkable rapidity in brood-rearing, while others will apparently make little or no advancement.

So the successful bee-keeper should also understand queen-raising, as he should reproduce or procure superior individuals of the most improved stock. He must also study his field, and know from whence and at what time his principal flows are to come, and adopt a system of management which will enable him, or his bees, to gather and store it at the very moment that it is to be had.

Then comes the interesting question of being able to improve the natural capacity of his field by filling up the intervals of scarcity or dearth; for while it is true that, as above stated, there are certain times when, in nearly all localities, there are honey-flows far greater than can be saved by all the bees in the largest apiaries, it is also equally true that between these spasmodic flows there are often long intervals when, without aiding nature, there is little or no production whatever.

Now, assuming that this represents the condition of affairs in most localities, the question arises, "What can be done by the average bee-keeper to improve the situation or remedy the defects of nature?"

Buckwheat and alsike clover are in many places profitable farm crops, aside from their honey-producing qualities, and may not only be sown by the bee-keeper himself, but often a little argument or influence brought to bear upon neighbors may induce them to give these crops a trial, with the result that they will discover more advantages in them than they even suspected. Indeed, I have known of farmers becoming ardent admirers of alsike clover, and large producers of it, who would perhaps never have known its value but for an interested neighboring bee-keeper supplying a small quantity of seed and requesting him to give it a trial.

Of plants to be sown in waste places wholly on account of their honey-producing capacity, I know of none more valuable or more easily and cheaply produced than sweet clover. I do not think it advisable to try to get this by sowing on cultivated land with some grain crop, as you would other kinds of clover; for under such circumstances I have almost invariably failed to get a stand; but if we just follow nature, and scatter a few seeds along the highways and railroad embankments, and on the thousand and one vacant strips and corners which may be found in almost any neighborhood, at any time from September to April, they will germinate, and not only take care of themselves but rapidly spread from self-sown seeds, and no other plant that I know will afford more honey or for a longer period.

As valuable as is buckwheat for honey, it has serious defects. Not only is its season short in duration, but it usually produces honey only during the earlier hours of each day. In the afternoon there is usually nothing doing. Not so with sweet clover. In season it lasts for months, completely filling up the intervals of dearth between other supplies, and seemingly furnishing an abundance of nectar from earliest dawn until dark each day; and, as in many other things of life, it is *constancy* that tells in the end. And to the credit of sweet clover, I want to say it is far from valueless for other purposes, as some seem to think. As a soil improver or renovator it will be hard to find its equal. It will readily grow upon the poorest sand and gravel, where scarcely any other plant will start or thrive, and it not only has the power, like other clovers, of enriching this soil by gathering nitrogen from the air, but its deep-running roots bring up plant food from great depths below, and the crop has only to die down and decay for a few years when the surface will be found in condition to grow almost any thing.

Indeed, so great is my faith in sweet clover that I am preparing to sow our poorest ten-acre field in early spring with a mixture of it together with alsike clover, and I shall let them remain unmolested for several years for the combined benefit of the land and the bees.

Factoryville, Pa., Dec. 15.

## BEES AND POULTRY.

### The Value of the American Hen as a Producer of Wealth.

BY J. E. HAND.

The question that often confronts the bee-keeper is, "What occupation shall we follow in connection with bee-keeping to give us something to do during winter as well as during our spare time during the busy season?" While, doubtless, there are a few who would prefer to follow the advice of W. Z. Hutchinson, and keep more bees, yet the majority of the bee-keepers of the country prefer to have some other business in connection with bee-keeping, for various good reasons. To such as these I wish to say I know of no branch of rural industry that is so well suited to this purpose as poultry-keeping, especially where the bee-keeper has a few acres of land, and can raise the feed for his poultry. Poultry, like bees, requires but little room, and the business brings quick and perhaps better returns for the capital invested, than any other branch of rural industry.

The branch of the poultry business that appeals the strongest to the honey-producer is the production of winter eggs; and, of course, summer eggs will be plentiful. This will give the honey-producer a winter occupation that will be both pleasant and profitable if rightly managed, and will help to tide the bee-keeper over the poor seasons, which occur with painful frequency.

To give the reader something of an idea of the magnitude of the poultry industry of the United States let me give you a few figures.

The dairy products of the United States for one year amounted to $254,000,000. We are in the habit of looking at this branch of rural industry as one of considerable extent, and yet we find that the poultry products for the same year amounted to the snug little sum of $560,000,000, or more than twice as much as the dairy business. In view of these stupendous figures it is pretty safe to say that no other department of the farm will yield such generous returns for labor and capital invested as poultry, except, perhaps, bee-keeping. Egg-farming, like every other calling, in order to be a success, demands experience, and

bee-keeping is no exception to this rule. The novice does not realize this. He makes his investment and then enters the school of experience, and very soon comes to grief. The following little incident will show about how the average novice looks at the poultry business as well as the bee business.

It was on the Atlantic coast, and a well-known lecturer on poultry had impressed upon his hearers the vast importance of the poultry industry, when a young man in the audience questioned him thus:

"I am anxious to invest $500 in a business undertaking. Would you advise me to engage in the poultry business?"

"Do you know any thing about the poultry business?" inquired the lecturer.

"No, sir," was the reply.

"Oh!" said the lecturer, "do you know any thing about the drug business?"

"Why, no, sir," was the reply.

"Well, then, my friend," said Mr. G., "I would advise you to tackle the drug business first."

It will be readily seen that the drug business was chosen as an example of a profession requiring knowledge, experience, and care; and it was a good illustration that equal experience, knowledge, and skill are essential to success in the poultry business, and, I may add, the bee business likewise.

This young man who could not tell a cock from a cockerel nor a Leghorn from a Brahma was willing to invest his all in the poultry business, of which he knew practically nothing. This is why so many fail in the bee and poultry business. It requires years of study and experience to master any business, and the bee and poultry business is no exception to this rule. While I would advise every one who owns or controls a few rods of ground to keep at least bees enough to supply his own table with that most delicious of all sweets, honey, and poultry enough to supply his table with fresh eggs, and while I would recommend the keeping of poultry for egg-production as a valuable adjunct to bee-keeping, yet I would caution the beginner against investing a great amount of hard-earned cash in either. Better begin small and let your capital increase with your experience.

The qualifications necessary to successful bee-keeping should enable the successful bee-keeper to master the poultry business, and I would not expect one who had made a failure of the poultry business to be a howling success as a bee-keeper. It is a common practice for those who make a failure of any branch of business to condemn the business when, in reality, the fault was in their own mismanagement. The hen is a machine, and has no will power over the matter of egg-production; and with proper care and suitable food she *must* lay eggs in spite of any will power, even if she had it. I have found the poultry business in connection with bee-keeping to be both pleasant and profitable; and our 350 Leghorn pullets have been laying constantly since September, and we get paid spot cash for every ounce of food they consume, with 200 per cent added for profit. All honor to the American hen and the honey-bee as models of industry and thrift.

Birmingham, Ohio.

## NON-SWARMING BEES.

### Further Particulars on what has been Done in Switzerland Toward the Elimination of the Swarming Tendency by Breeding.

BY DR. C. C. MILLER.

In GLEANINGS for Dec. 15, 1907, p. 1554, Editor Kramer, of the *Swiss Bee Journal*, was quoted in a Straw as saying that the swarming problem was solved in Switzerland by weeding out swarmy stock. Although it was not specially mentioned there, the bee particularly favored in Switzerland is the native black (or brown) bee. In a footnote Editor Root said: "Possibly Editor Kramer lives in a locality where there are no preliminary flows, but one heavy one, so there will be very little tendency on the part of the bees to swarm; therefore a little effort to breed out the swarming tendency might make quite a showing." Moreover he felt quite sure those same Swiss black bees would swarm the same as other bees if brought to this country, at least in the white-clover regions of the Northern States.

Editor Kramer made quite an instructive reply to this in the March number of his journal, page 97. By the time I got around to it I was too crowded to give it attention, but am glad to do so now, as the information is just as valuable to-day as it was then.

Herr Kramer says: "It goes without saying, that the tendency to swarm is materially furthered by conditions of the harvest, especially by a favorable fore-harvest, as well as by a sheltered location. But Herr Root is deceived if he thinks that the main harvest sets in at the beginning of the season. Just the contrary. From the end of April to the end of May, the orchards offer a fore-harvest, not very heavy as a rule, but stimulating toward brood-rearing and swarming. Not till the last of May or in June does the main flow begin in the valleys. So we have here present the climatic and floral conditions that favor swarming, which is also proven by the former general complaint as to the swarming of hybrids."

That looks as if there ought to be the same inducement to swarm in Switzerland as in Northern Illinois, as the flows seem about the same.

But Mr. Kramer says the tendency to swarm is in the blood just as much as in the air, and is an inherited trait. It is not merely an individual predisposition, but a race characteristic, and, as such, is deeply rooted.

According to Mr. Kramer we have not obtained so satisfactory results as the Swiss in the matter of swarming, because our favorite bee is the hot-blooded Italian, while theirs is the cold-blooded native or brown bee. That's why the question of prevention of swarming is a settled question with them. They started with the most peaceful, the best hustlers to be found in the land. Since the distribution of these bees, hundreds can testify that at one stroke the matter has been simplified. Just one instance: In Unterseen, H. Grossmann, for long years migrating with his bees to Muerren, with its altitude of 1600 meters, had constant failures formerly when Italians were in favor in that region. Just so soon as honey began to shine in the supers, out would come a

swarm, ruining his harvest. Since he has cultivated the natives, swarms in the same place are a rarity. He no longer troubles himself about them.

Not for the past eleven years has the question of prevention of swarming been up for discussion in Swiss conventions.

Of course there are differences in this respect. There are yards of the brown race where a few swarms annually are welcomed; and cells from these being utilized, the moderate swarm-lust is perpetuated. Yet the majority of Swiss bee-keepers have, so to say, renounced swarming entirely, since the use of right methods has brought such remarkably satisfactory results with artificial increase.

With not a swarm last year, and only one this year, in an apiary of 70 colonies, as reported by Mr. Wuersten, in Bern, likely the limit of possibility has been reached.

According to the reports of 1907, out of 40 breeders 16 had stimulated their extra hustlers toward swarming; in spite of this, 10 had no results; and of 1544 colonies, only 90 swarmed, or 6 per cent. In 11 apiaries, with 280 colonies, *not one* swarm issued.

Mr. Kramer does not contend that their best types agree to limit themselves under all circumstances to a fixed number of swarms, as weather conditions and stimulation have their influence.

Among their colonies on scales at the observation-stations they have also types of fixed character, as Flora in Zuerich, and Mrs. Keller's Turba (they have names for their queens). For ten years these have had never a Festbummel. (I don't know what a Festbummel is; but likely enough it's the racket Swiss bees make when they swarm.)

It must be mentioned, however, Mr. Kramer says, that there are some cases of harking back, occasional colonies swarming two or three times in the same year. That is nothing strange. Leaving these out of the count, the remainder give only a small per cent of swarms. "And that," says he, "fully satisfies us."

That would hardly fully satisfy a large number of American bee-keepers, who would not like the loss of this small per cent in out-apiaries with no one to watch. Likely it is different in Switzerland, if each bee-keeper generally has only the one apiary, and is on hand to see any swarm issuing.

"In ten years," says Mr. Kramer, "from about a dozen colonies I have had only one swarm. Early in June, 1907, I gave to my strongest colony a queen-cell just hatching. The colony was in the fullest state of development, and swarming would naturally have been expected; but instead of that there was quiet superseding."

He feels certain that Americans may reach a strain of bees giving only two or three per cent of swarms, but not with hot-blooded bees. With colonies out in the open in America, the chance is better than in Switzerland, where bees are housed, or in the shelter of buildings, and with brown bees Americans ought to be able to reach a strain of bees that might fairly be called non-swarming.

All of this sets one to thinking, and raises some questions. However much better we have found Italians than black or brown bees it seems hardly worth while to dispute that the reverse is the case in Switzerland. Is it not just possible that blacks over there are materially different from the ones we have here? Might it not be worth while to try their blacks here?

Supposing we should try some of their best stock, and find them fall so far behind our Italians as honey-gatherers that we would rather stand the extra swarming of the hot-blooded yellow bees, there still remains the fact that by persistent breeding they have secured what closely approaches non-swarming bees. If they can do that with black bees, why can it not be done with yellow bees? Admit that there is more "swarm" to a yellow bee, it is only a matter of more time and more effort. In that connection the lesson we are to learn from Swiss bee-keepers is that they have gained their goal by a united effort. What law is there to prevent all the leading bee-keepers of our land from working as a unit for a strain of Italians at least somewhat approaching non-swarmers?

In trying to take heart from the example of our Swiss brethren, it is only fair to note one feature that detracts quite a little bit. Those of our ranks who are perhaps most especially interested in having bees little given to swarming are producers of comb honey. If I am not mistaken, extracted honey has pretty much the whole field in Switzerland, and the prevention of swarming with bees run for comb honey might be found there quite a different problem. Even so, the game is worth the candle.

Please bear in mind that the effort for such bees is not merely to get rid of the swarming trouble. If personal reference may be pardoned, I may say that for years the colonies that have given me my best yields and the colonies least given to swarming have been practically identical. Moreover, I am sure that by continuous breeding from colonies least inclined to swarm I have made quite a little progress in the long journey to No-swarm-land. If one man alone can do even a little, what might not be done by all working together?

Marengo, Ill.

[Our Swiss brethren, as we understand it, produce extracted honey almost exclusively, and they use very large hives or "chests," as they call them. Under these conditions it is no wonder they have very little swarming. The Dadants, of Hamilton, Ill., run for extracted honey, using large hives and pure Italian bees; yet their swarming, ranging over a period of many years, has not been much over two per cent. Practically the same may be said of all the Dadants' following in Europe. What strain of Italians Mr. Grossmann had been trying when he had so much swarming is not stated; but we have no trouble in this country when leather-colored Italians are used in large hives run for extracted honey. We are unwilling to believe that the gentle yellow bees of Northern Italy are any worse about swarming than a strain of black bees in Switzerland. Still, we are open to conviction. The black bees of the Swiss bee-keepers may be very different from the German or black bees in this country. It is generally conceded that the Carniolans, native of a country that is practically a geographical part of Switzerland, are much more inclined to swarm than the ordinary Italians.—ED.]

## BEE DEMONSTRATIONS AT FAIRS.

### Crowds Attracted by a Boy Covered with Bees, Wearing a Bathing-suit Only.

BY CHAS. MONDENG.

The Minnesota State Fair Society spends about $1000 for premiums on bee and honey exhibits. Last year, 1908, was the first time that the society offered premiums on live-bee demonstrations. First prize was $40; second one, $20

We had a large cage outside of the bee and honey exhibit building. About twelve feet from the cage we had two big swarms of bees—one colony of leather-colored Italian bees and one colony of golden Adel bees.

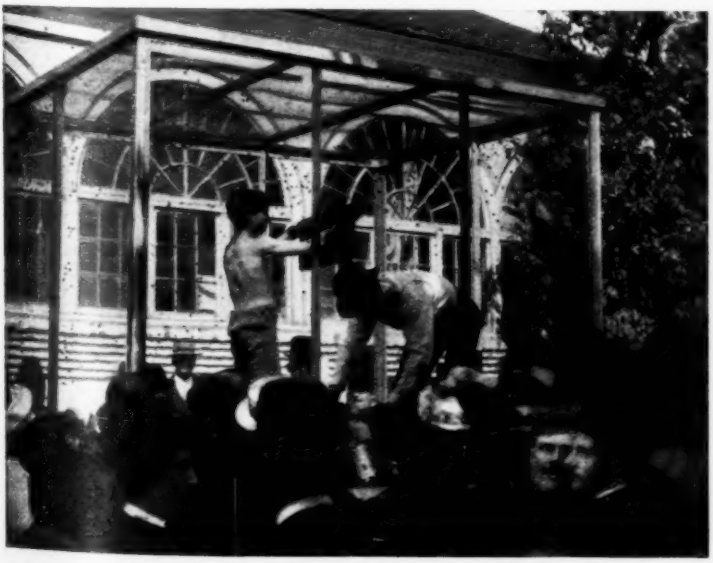
As soon as we were ready for the demonstration we took a colony into the cage; and before we were ready with the smoker there was an army of spectators. I showed the audience how they could handle bees if they used a little smoke. Slowly and carefully I blew smoke into the hive-entrance, and then, lifting the cover, smoked in the top. There came an "oh!" from the crowd when the little fellow brought out a frame full of bees. "Won't they sting?" or "They got all the stings pulled out," was heard from all sides.

While I was filling my hat, inside and out, with bees, the boy found the queen and showed it to the audience. There was a rush and a scramble to see the queen. Next I showed my hat. It was covered with bees, inside and out. I ran my finger around the inside rim, and wore my hat filled with bees. The boy covered his hat with bees, and followed me while I was lecturing on queens and bees in general. I showed that queen-breeders could not get along nowadays without grafting. "*And what happens to the drones?*" Again came an "oh!" and "We are lucky, after all." All the different supplies were shown, and how to use them. I could hear them say, "It is wonderful."

In the meantime my son picked up half a dozen drones and placed them in

CHARLES MONDENG AND HIS SON NORMAN DEMONSTRATING ADEL BEES AT THE MINNESOTA STATE FAIR.

Mr. Mondeng and his son were awarded first prize for bee demonstration; first prize on golden Italian bees; first prize on leather-colored Italian bees.



Norman Mondeng is only eleven years old, yet he handles bees without fear. His entire clothing was a bathing suit.

his mouth. I heard a man say, "That beats any thing I have ever seen." Next I filled a paper cone with bees. My son turned toward me and I dumped the full contents of the cone on his bare back. Then he turned around and loaded his hands with bees. I heard one of the crowd say, "That is enough, I wouldn't have the boy's job for a thousand dollars." We shook all the bees off in front of the hive. My bee-brush was not just right, and in brushing off the boy's back, one bee hung with its sting to his back. In a low tone the boy said, "One is tickling me."

We took the colony back to its place, opened the top of the cage, and in a few minutes every bee was in the hive. The whole audience made for the inside, where the honey exhibit was. There was Mrs. Mondeng with the rest of the bees and observatory hives. The inquiry was, "Say, lady, can you tell us what the man and boy got on their hides?" The answer was, "Nothing." "But they must rub something on; it would be impossible otherwise." There was no end to such inquiries.

Minneapolis, Minn.

[When bees are properly handled there is little or no danger of getting stung while in the cage. Our Mr. E. R. Root has made something over fifty demonstrations of this sort before public audiences. While he does not do more than to bare his arms, head, and neck, he finds that he can throw the bees all over his head, but he must not handle them roughly. A double handful is picked out of the mass, then they are gently deposited on top of the head; then the hands are shaken very gently, leaving the bees on the head and free from the hands.

The boy as here shown ordinarily would be perfectly safe; but in putting the bees on his back we would not advise dumping them on, for then there would be a chance for a sting. The attendant had better pick them up and put them on his back in the manner we have explained when the bees are put on the head.

Such demonstrations as these, accompanied by some good honey salesman, will do much to help the honey trade. The people generally know practically nothing about bees or the bee business. These public demonstrations and lectures help to remove a great deal of prejudice, and to stimulate the demand for honey. They do not make bee-keepers, but they do make honey-eaters. Let the good work go on.—ED.]

## NUMBERING HIVES.

BY J. A. GREEN.

Some method of numbering the hives of an apiary is undoubtedly desirable. Although some with large apiaries employ methods that seem to make records of any kind unnecessary, and some with small apiaries are able to remember the condition of each colony and the work done on it so perfectly that they are not in need of any memorandum, most bee-keepers find, or should find, that some kind of record is desirable, even if it is nothing more than a record of the age of the queen. This can hardly be dispensed with in successful bee-keeping. For the practical bee-keeper to keep any record of his hives, some method of numbering must be adopted; though I have heard of some who have named the hives and even the queens.

The usual way of doing this is by painting the number on the hive. The confusion that this results in in an apiary of any size, where hives are moved about to any extent, makes it very difficult, or at least very wasteful of time, to find any desired number.

It is something of an improvement over this plan to use numbered tags or other movable numbers, since they can, at least occasionally, be corrected as to position in the apiary by changing the numbers around.

Some use the plan of changing the numbers at the time the hive is moved. If this is faithfully attended to, it prevents confusion; but it entails considerable labor and watchfulness at a time when the busy bee-keeper can ill afford it. In fact, numbering the hives by any system of fixed or movable numbers on the hives themselves is so complicated and troublesome that I long ago discarded it for a system by which I can almost instantly tell the number of any hive, or as quickly the position in the yard of a hive of any particular number, though no number or tags are used on either hive or position for this purpose. To do this I make use of a principle similar to that used in modern systems of house-numbering in cities. I subjoin a diagram showing the num-

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11 | 21 | 31 | 41 | 51 | 61 | 71 | 81 | 91 | 101 |
| 12 | 22 | 32 | 42 | 52 | 62 | 72 | 82 | 92 | 102 |
| 13 | 23 | 33 | 43 | 53 | 63 | 73 | 83 | 93 | 103 |
| 14 | 24 | 34 | 44 | 54 | 64 | 74 | 84 | 94 | 104 |
| 15 | 25 | 35 | 45 | 55 | 65 | 75 | 85 | 95 | 105 |
| 16 | 26 | 36 | 46 | 56 | 66 | 76 | 86 | 96 | 106 |
| 17 | 27 | 37 | 47 | 57 | 67 | 77 | 87 | 97 | 107 |
| 18 | 28 | 38 | 48 | 58 | 68 | 78 | 88 | 98 | 108 |

bering. To number an apiary according to this plan, a straight line of hives along one side of the apiary should be selected as a base line. There may be any number of hives in this line. Other hives should be set in rows at right angles to this base line. It is better not to put over eight or nine hives in each of these rows. By examining the diagram it will be seen that each hive has two or more figures in its number. The first figure indicates the number of the row, from the beginning of the base line (the upper left-hand corner in the diagram). The last figure of the number indicates the position of the hive in that row. Thus, No. 11 is the first hive in the first row; No. 34 is the fourth hive in the third row; No. 58 is the eighth hive in the fifth row, etc.

It will be noticed that in the diagram the hives are placed in groups of four each. I prefer them this way for several reasons which I will not take space to explain here.

You may object to this that the numbers give no idea of the number of hives in the apiary; but this makes no real difference, and is of no more importance than that the numbers of houses in a city bear no relation to the actual count of residences.

If you have many hives in your apiary it may be desirable to put numbers large enough to be seen easily from a distance on a row of stakes, or on the fence along the base line, and also, if you

MR. W. HESSEL-HALL'S APIARY IN NEW SOUTH WALES, AUSTRALIA, OR WHAT WAS LEFT OF IT AFTER IT WAS DESTROYED BY A "BUSH" FIRE.

wish, along row No. 1. This will make it easier for you to locate the rows or streets quickly. While this plan is better suited than any other to an apiary where the hives are in a more or less compact body, it also works well where the hives are in a double row, as when shade-sheds are used.

Grand Junction, Colo.

## HONEY-PLANTS IN AUSTRALIA DESTROYED BY BUSH FIRES.

BY HARRY STEPHENS.

I am sending a photograph of the apiary of Mr. W. Hessel-Hall, M. A., at Lapstone, near Sydney, New South Wales. This photo shows the devastation wrought by a bush fire which swept over his property about New Year's day.

We find GLEANINGS of engrossing interest, although half the year it deals with conditions quite foreign to us in a land where there is very little frost and no ice or snow. Our honey is almost entirely the product of bush blossoms; and while we have no winter, as you understand it, we have our own difficulties in the way of a diminished honey-flow through drouth, and the destruction of blossoming timber by bush fires. Furthermore, many of our best honey-trees do not flower every year.

Sydney, New South Wales, Australia.

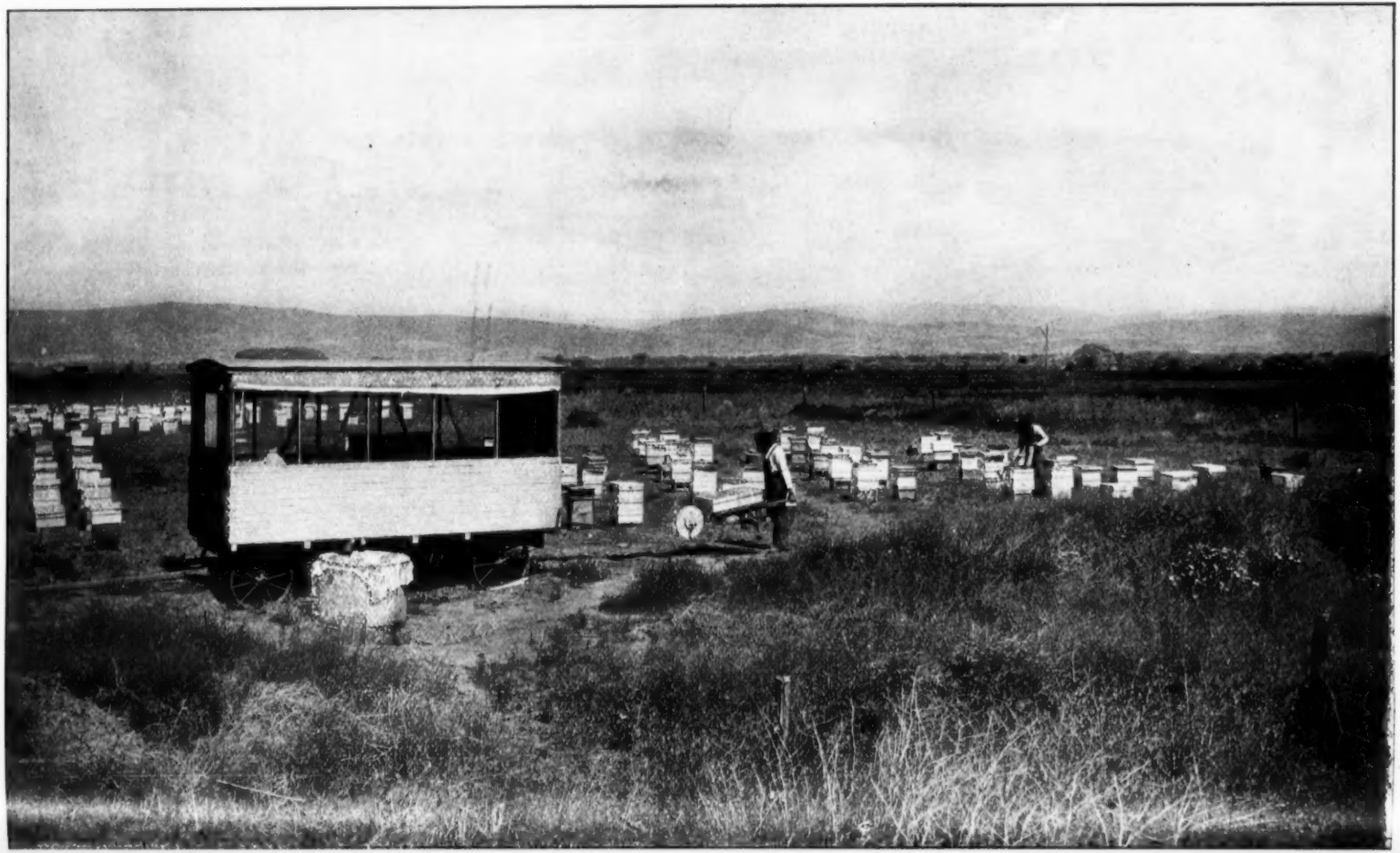
[The same is true here to a great extent of both trees and plants.—ED.]

## A GASOLINE-ENGINE EXTRACTING OUTFIT ON WHEELS.

### A Fully Equipped Portable Outfit.

BY VIRGIL SIRES.

I am sending some views of our apiary located on the Yakima Indian reservation. These show our extracting-house on wheels, which we used last season extracting about 20 tons of honey. This outfit has not proven entirely satisfactory, and we are yet undecided which is the better method with our yards, scattered as they are, to have a permanent extracting-house and a wagon rigged to haul the combs of honey from the different yards to this central location to be extracted, or to do as we did last season—go from yard to yard with the outfit mounted on wheels, as shown in the engraving. This season we probably shall do as we did last year—make some improvements in the outfit, and give the plan a more thorough trial.



VIRGIL SIRES' PORTABLE GASOLINE-ENGINE EXTRACTING-OUTFIT.

Instead of placing the tank to receive the honey as it runs from the extractor outside on the ground, it will be made to occupy the space under the floor. It will hold enough for at least half a day's extracting. The operators will not be bothered filling cans as fast as it is extracted, etc. It can be drawn from the large tank at spare time in the evening, or early morning before extracting can begin, or at the noon hour.

The open tank placed outside, covered with cloth, as shown, was very unsatisfactory. It required a lot of time to place it and make it beetight; also time is wasted digging a place under the gate to put the five-gallon cans to be filled.

With a tank placed under the floor with gates in the side or end it will always be ready for operation. There will be two compartments in the tank for the purpose of receiving the two grades of honey should there be any. The combs showing a dark grade of honey can be extracted separately, and run from the extractor into a separate compartment in the tank.

The house on the wagon is fitted with double doors in the back end, which swing both ways. A plank is placed on a level with the floor at one end, the other on the ground. A wheelbarrow loaded with supers of honey is run up the plank, the load pushed against the door, which swings in and closes as soon as the man is in, this giving but little chance for robbers to enter. As soon as the load is off the wheelbarrow the operator backs out, pushing the door outward, which closes the same as before.

There are no screen-doors. The screen is placed on the sides the whole length of the house as shown in the pictures. This makes a cool and comfortable place to work, even in the hottest weather, when no air is stirring, as the motion of the extractor causes a current through the house. Curtains are hung outside that may be dropped (or rolled up) to cover the screen if necessary to keep out wind or dust.

The outfit is equipped with a six-frame automatic extractor run by a gasoline-engine; also a capping-melter similar to the one described and recommended in GLEANINGS. This year we will make a new one, changed somewhat, which we think will be much better but more expensive.

We will try to solve (by experiments) this season several questions that remain (for us) unsolved in connection with operating a series of outyards on a large scale.

Why can we not have more articles from the large honey-producers, describing the equipment used in operating and handling bees and honey on a large scale, such as honey-houses, extracting-houses, wagons, storage-tanks, etc.?

North Yakima, Wash.

[We are very glad to receive articles from extensive honey-producers, especially those who use power-driven extracting-outfits. There must be something like three dozen of these located in various parts of the United States; and there are some hundreds of other bee-keepers who are contemplating putting in power to drive big extractors, and they want to know, of course, whether it pays to have a portable extracting-house of the type here shown, or whether it is more economical to have a permanent extracting-house located at home and haul the combs to and fro from the outyards, as is practiced by Mr. Chalon Fowls, whose extracting-outfit we illustrated on page 1375, Nov. 15, 1908. In GLEANINGS for Jan. 1, 1904, page 26, we showed a portable extracting-house that made use of a shallow tank under the house, the extractor being run by hand power. Perhaps the reader can get some suggestions from this article.

The advantage of hauling the combs is that the honey will be stored in safety at the home yard, where there can be plenty of room and every convenience. If the honey were extracted at the outyard it could doubtless be hauled home with a tank under the portable building; but if there is very much hill country or rough roads no ordinary team of horses would be able to pull the load. The question of hauling the power extracting-outfit and the honey after it is extracted, or drawing the combs home to be extracted, will depend to a considerable extent on the character of the roads and the lay of the land.

This is a very important question for the extensive producers of extracted honey, and our columns are open for its further discussion.—ED.]

## A PLEA FOR BABY NUCLEI.

BY THE LATE E. L. PRATT

Of late I have noted some criticism of small nuclei (baby mating-boxes if you please) from certain quarters, to the effect that these small mating nuclei are being given up by many as too much trouble to look after, and that strong three and five frame nuclei colonies are preferred.

The criticism of this economical small-mating-box plan of queen fertilization, you have perhaps noted, comes mainly from large honey-producers —from men who own from 300 to 500 colonies of bees. For such large producers the strong nuclei may be more satisfactory, but look at the number of bees and the quantity of extra bee material required! Simply out of the question with the one owning perhaps but twenty colonies.

The large producer will think nothing of breaking twenty-five colonies into full framed nuclei, both for increase and queen-rearing—but what is the little fellow with a queen trade to do? Can he afford to sacrifice even ten of his full colonies in this fashion? No, he must economize; he must not use so many bees in his mating nuclei or he will not have strong colonies enough left to supply him with queen-cells, drones, and extra bees for his queen-raising operations.

Those who have most sweepingly condemned small mating nuclei overlook the fact that there are thousands of bee-keepers who do not own twenty-five full colonies each in all, yet have a desire to rear a few queens for their own use and have a few to sell. To such, it must be admitted, the small baby-nuclei plan is a boon—it is economical, efficient, satisfactory, and possible to the small producer.

Small mating nuclei are not so much bother after all when expense is considered. All that is required is regular feeding of thin sugar syrup once a week or so, when honey is not coming in —that is all.

The twin mating-boxes are provided with convenient feeders, and the task of giving each box

ARTICHOKE FLOWER AND TWO OPENING BUDS.

a cupful of syrup once a week is not a great one —is it, now?

Swarthmore, Pa., Feb. 23.

## ARTICHOKES FOR BEES.

BY W. A. PRYAL.

The illustration here shown is of a flower that is a rather rare sight in the United States, except in portions of the South and in California. This is not altogether because it can not be raised in cold places, but mostly for the fact that Americans have not come to like the plant for food or ornament. It is the globe artichoke (*Cynara scolymus*), of which some twenty varieties are grown in European gardens. In this country, seldom is more than a single sort seen.

As long as I can remember, I have seen this plant here; in fact, it has become quite common as a garden-plant, even in places where it is not kept for edible use. The largest growers are the Italians, and, I believe, the French, who are partial to it. It is a perennial, of very easy culture, thriving best in good deep garden soil. As a plant was growing in one of the vegetable-beds near my apiary, and the flowers were being eagerly rifled by bees in quest of nectar, I was so much pleased with the picture it presented that I photographed it. At the time I started to shift for a position to get a good view of the flower and buds, the open flower was just "swarming" with bees, but they must have been scared off on seeing the camera.

As to the merits of this flower as a honey-yielder, I know but little; still, I am confident if there were big patches of it near an apiary it would be something worth while for the bees and the apiarist. It seldom self-seeds itself, though I saw a pasture some years ago in Contra Costa County, just above the northern line of Berkeley, where there were acres of artichokes growing wild, for they seemed to thrive like thistles. The plants had been growing in a garden that was abandoned in the sixties, and by self-seeding the adjoining fields were covered with them. It is probable that they furnish rich forage for somebody's bees. It seemed evident they were good for nothing else, unless cattle would browse on the large juicy leaves.

The common Jerusalem artichoke (*Helianthus tuberosus*) is also a good honey-plant. The flowers resemble those of the sunflower, to which family it is a member. It is a good tuber to plant for those who wish to raise plenty of hog-feed without much labor or expense. Put the cut tubers in any sort of soil and let them grow; the hogs will do the harvesting. Still, it is a tuber that some persons greatly relish—as much so as they do potatoes.

Oakland, Cal.

## WHITE CLOVER.

### What One of Uncle Sam's Men Says about it; Does it Remain Vigorous Indefinitely from the Same Root?

BY DR. C. C. MILLER.

Unusual interest has been shown lately regarding white clover, and the different ideas concerning it show that more light would not be unwelcome. So I appealed for light to the United States Department of Agriculture, and received the following interesting reply:

The questions which you ask in regard to white clover, I am afraid we can not answer in as much detail as you might wish, and in some instances not quite definitely.

At our experimental stations we have found that white clover seeded in the spring will bloom the same season. The extent to which it blooms, however, depends largely on the climate, and I could not say definitely whether you would get a heavy crop of bloom in your locality or not. At Pullman, Washington, last season the white clover seeded in the spring produced a heavy crop of bloom by July 15th, and the heads later were pretty well filled with seed. It is the general opinion, however, that the first season's bloom does not appear in as great abundance as it does the following season.

You ask whether white clover that has not been allowed to mature seed remains vigorous from year to year. The best example I can give you in this is a case of white clover growing in a lawn. It certainly remains vigorous for an indefinite period. It is doubtful, however, whether it can be clipped or grazed sufficiently close to prevent some seed forming. White clover is considered a very hardy perennial plant, and without doubt will remain vigorous indefinitely from the same root.

AN ORNAMENTAL SHED FOR BEES, MADE OF CEDAR SLABS.

As to whether wet ground will heave more than dry ground, thus injuring or killing the clover, I will say that perfectly dry soil is not nearly so apt to heave as wet soil, and in general winter-killing from any reason is not so apt to occur where the ground is dry as where it is wet. The extent to which soils heave depends largely on their nature. On this point I can give you but very little definite information. R. A. OAKLEY,
Washington, D. C. *Assistant Agrostologist.*

Strange that none of us happened to think of our yards or lawns, where the clover grows luxuriantly from year to year and never dies out. Observation in this direction ought to allay any great fear as to overcrowding. Certainly on a well-kept lawn that has been in existence for several years there ought to be crowding if crowding is to be found anywhere. It would be hard to say positively just how clover when thus crowded on a lawn compares with clover in an ordinary pasture-field as to the nectar yielded; but from the number of bees to be seen on such a lawn it can hardly be inferior.

It seems also a mistake to hold that clover produces nectar only in the second year of its existence. Even in the first year, at least in some localities, it blooms and produces seed, and it would hardly have seed without nectar.

Prof. Oakley says, "White clover . . . . will remain vigorous indefinitely from the same root." So long as it remains "vigorous," can there be doubt about its producing bloom and nectar? Yet in view of the more or less general opinion that a plant is not valuable for nectar after the second year, one can but wish for more definite knowledge. That knowledge can be obtained easily, if time enough is taken. Take an isolated plant, or choose a spot in a lawn, allowing seed to mature, but clipping the seed before it falls, and see what the result is in the third and subsequent years.

Even if Prof. Oakley has not told us all we'd like to know, he deserves our thanks for giving us *something* with some degree of definiteness on a subject of so much importance, and concerning which we have rather divergent views.

Marengo, Ill.

[We are glad to get this from one who is evidently an authority on the subject of clovers. The professor's statement is fully borne out by evidence in our locality.—ED.]

## A PERMANENT SHED FOR BEES.

BY J. M. LEWIS.

Although well advanced in life I am an amateur with the bees, and keep them only for pleasure and to supply our own table with honey.

The picture shows my apiary, the shed being made of cedar slabs on a frame of round poles. The hives are in their winter casings. These casings are made of half-inch cedar-boards, two inches larger than the hives, and the space between is filled with ground cork.

The apiary fronts toward the south, and therefore the hives get the sun a part of every pleasant day during the winter. In the summer it is well shaded by the house, which is on the east, and a large tree which stands directly in front. It seems to be an ideal place Up to the present time the bees have done unusually well, and I hope they will go through the spring without loss. My first attempt was a failure. I put my colonies in a small building with very little light and no special protection, and lost them all. Last year I began again and built this shed.

North Westport, Mass., Feb. 15.

## CARPENTRY FOR BEE-KEEPERS.

### How to Make a Work-bench.

BY F. DUNDAS TODD.

A work-bench is not exactly a jig, but it is a necessity to a bee-keeper, and a great comfort to every man who can spare the room for it. I have made three in my life, and I like my last one best of all, especially because of one noticeable

feature—the well in the center. This is the style of bench that is in general use here, and at first I rather hesitated about adopting it; but now that I have had experience I have no further use for the old-fashioned flat-topped type. In my case the well is 1¾ inches deep and 4½ wide. It never interferes with ordinary work in the least, but rather helps, as one can sweep into it with one shove of the hand any tools that happen to be in the way. Again, I usually have lying in it a few of each size of nail in use, and can, therefore, get one at once without taking from the wall one of the cigar-boxes recommended by Dr. Miller. Then think of its convenience when one wants to shorten by sawing an already short piece of wood. Lay it flat on the bench and it will wriggle worse than an eel; but place it in the well, and it can be pressed firmly against the side, or, if necessary, readily wedged in position. Last of all, it is the firm foundation for most of my other jigs, as each is dropped into the well and jammed tight by strips of wood of suitable thickness.

My bench is made of fir, the cost of the lumber here being $2.00. The iron screw for the clamp cost 75 cts.; the piping and caps for the handle cost 15 cts. Total cost, $2.90. The wood handle supplied with the screw breaks, as a rule, the first day, so do not bother with it for even an instant.

My bench is 23½ inches wide, 72 inches long, and 31¾ inches in height. This is, I think, standard height; but as I am close on to six feet in length I think possibly an inch higher would suit me better.

Here are the lumber specifications:

| | |
|---|---|
| Top, 2 pieces, 1 ¾ x 9½ x 72 | ¾ x 11½ x 22 |
| Top, 1 piece, ¾ x 5½ x 72 | Clamp, 1 piece, 1¾ x 8 x 30 |
| Sides, 2 pieces, ¾ x 11½ x 72 | Clamp-guide, 1 piece, ¾ x 3 x 18 |
| Back, 1 piece, ¾ x 7½ x 72 | Tool-rack, 1 piece, ¾ x 1¾ x 60 |
| Legs, 4 pieces, 1¾ x 3¾ x 30½ | Tool-rack, 1 piece, ⅜ x ⅞ x 60 |
| Crosspieces for legs, 2 pieces, | Lumber is dressed on four sides. |

Start by making a half-check on the end of each leg as shown at A. This is to be ½ inch deep and half the width of the lumber—that is, ⅞ inch wide. The projecting pieces are to be sunk into the top, for, unless this is done, the bench will be racked to pieces the moment the clamp is used.

Now lay a pair of the legs parallel on the floor, on the narrow edge, with the projections inside. Lay on one of the cross-pieces, adjusting the edges to those of the legs and making the upper edge in line with the lower edge of the check. That is, the half-inch projection must be above the cross-piece, as it is to be sunk into the top. Nail, or use, as I did, 1⅞-inch screws. Do the same with the other pair of legs.

Next take the boards for the sides, and, 9 inches from each end, draw pencil-lines at right angles to show where the legs are to come. Place each pair of legs on edge, about 4 feet apart, and nail on the front board, making the outer edge of the leg coincide with the pencil-mark, and the upper edge of the board in line with the lower edge of the check. Then turn over and nail on the other sideboard.

You will now have an oblong frame on which the top is to rest. Place the thick pieces in position, taking care that the edges and ends are true with the frame. Then duck under, and with a pencil outline the projections so as to know where you must dig the holes with a chisel.

When the holes are made, place the pieces in position; then slip the 5½-inch board that forms the bottom of the well into place. Mark its position on the cross-boards. As it is ¾ inch thick, there must be cut out a piece that deep from the cross-pieces. Mark the outline of the cut with a pencil; saw down to the horizontal line, not only at the ends, but also in the middle. Knock out the pieces with a chisel, and smooth off with the same tool or a knife.

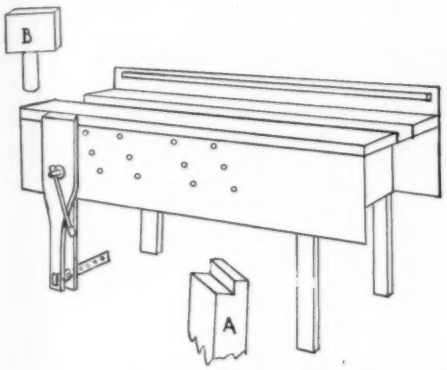
You may now proceed to finish the top of your bench, first putting the thin piece in place, then the heavy ones. Then locate the position of the legs by careful measurement, and drawing the outline of each on the bench. Then in the very center of each drive a screw at least 4 inches long. I had to drill holes in the fir; and even with pine such drilling will be necessary. Along the edges, nails at least 3½ inches long should be used, and the same kind will be needed to fasten the inner edges to the cross-pieces. The bottom-board of the well is fastened to the heavy parts of the top. To do this the bench will have to be turned upside down. Nail every two feet; for if you do not you will be annoyed by small nails and such working their way into the crack.

So far the work has been easy, and should not take over two hours to do; but making and fitting the clamp is much more ticklish, and may take the rest of a working-day. I have made two recently; and even with experience the second one, with the fitting, occupied me over four hours.

The piece for the clamp is intentionally ordered a trifle longer than is necessary so as to ensure accuracy at the final fitting. Begin by locating on the edge of the front board of the bench a point exactly opposite the center of the leg, then bring the center of the top of the clamp in touch with it. Get the clamp exactly perpendicular, then with a pencil mark on the front board the location of its edges so as to get a guide in future operations. Now place the clamp on top of the bench and mark off the outline of the shape to which it is to be trimmed. Start by drawing lines parallel to the two edges at a distance of 1¼ in. from them. Then from the top measure off a distance of 11 inches, putting the mark on the edge of the block, and at a distance of 1½ inches further on, but on the pencil-lines, make another mark. Connect each pair by a straight line, and you will have the outline of the parts that are to be cut from the lower end. Make the cross-cuts first, then rip off the strips. With the plane round off the sharp edges, working them down to a thickness of about 1¼ in., and inward about 1½. To work the angle into a curve is more ticklish; but a spokeshave does the rough work readily; then the rasp, followed by a half-round wood file, will give a presentable appearance.

Now comes the most ticklish part of the work—the fitting of the clamp to the bench. Till now the tools used have been such as are sure to be found in the possession of every man who pretends ever to handle them. But we now need an extension-bit, and that, too, of the larger size. I borrowed one from a carpenter friend, and would advise that my example be followed. Probably he will prefer to make the holes himself; and if he does, take him at his word, as one has to learn how to handle this useful tool.

The eye end of the screw-bar for the clamp has a rounded part nearly two inches in diameter, which must be countersunk into the clamp; then the bar itself is 1¼ inches thick; and for its accommodation a hole must be bored through clamp, front board, and leg. Begin by measuring 8 inches from the top end of the clamp, and find the center of the board. Then place the clamp in position, taking care that the edges coincide with the pencil-marks, and (this is important) that the top of the clamp project ½ inch above the top of the bench. Take a ½-inch drill and bore through the clamp into the front board, and thus make sure of true centering later on.




If you are accustomed to an extension bit you need no further advice about getting the width of the cut; if you are not familiar, get help from some one who is.

Once the holes are drilled, and the fitments of the screw all fastened in place, screw the clamp up tight, taking care that the edges again meet the lines as before; then with a pencil draw a line flush with the top of the bench. You may also prepare for the clamp-guide, which is fastened to the lower end of the clamp. As this piece of wood is ¾×3 inches, and needs a little room for play, the hole in the clamp ought to be ⅞×4 inches. Before boring the holes you will find it pays to insert between the clamp and the leg of the bench a bit of wood ¾ inch thick so that every thing will be firm when you are boring. With a ⅞-inch bit, drill two holes whose centers are 3 inches apart, going right through the leg without stopping, if your tool will permit.

Now remove the clamp, and enlarge the holes by using the chisel. Also saw the spare wood off the top of the clamp, preferably at an angle so that the top of the clamp shall be on a slight bevel.

The clamp-guide needs a little work in the form of holes to hold the top-bar. I like a bar of iron at least half an inch thick for a pin, and the holes in mine are, of course, made for that size. They are arranged alternately, in two rows, a little over an inch apart, and with two inches between holes in each row. The guide itself is fastened to the clamp by means of a ¼-inch spike six inches long driven from one side.

Put the clamp back into place and your bench is almost finished, all but the back and tool-rack. To make the latter, cut the ⅜×⅞ lumber into short lengths, say 1½ inches long, about 30 in all. Nail these crosswise of the 1¼ stuff at distances of about one inch. Through each end one, and through every fourth one, drill a hole for a screw, then fasten the rack in place, about an inch below the top of the back. Last of all, nail the back in place.

If you ever expect to plane the edges of long boards I would advise the boring of a series of ⅞-inch holes, as shown in the front board, and the making of a pin like the one (B) shown in the drawing.

To hold flat lumber in place while planing, you will need a bench-stop. I have tried several, but have found nothing better than a couple of 1¼-in. strong screws set about 1½ in. apart, about two inches from and parallel to the end of the bench. They can be driven below the level of the surface if necessary. To prevent thin and light pieces moving backward when the plane is drawn back, get a bit of the blade of a steel table-knife, not more than two inches long, and by a tap of the hammer you can sink the sharp edge into the bench just enough to hold the wood tight against the screws. I think you will find this bench a great comfort.

Victoria, B. C., Canada.

## SOME POINTS ON INTRODUCING.

### Introducing by Way of the Entrance.

BY DR. C. C. MILLER.

A correspondent, Luther P. Fairbank, wants me to answer in GLEANINGS questions upon some points in "Forty Years Among the Bees."

If at any time a queen is caged with her own colony, the cage may be put in the center of the brood-nest between two combs, down among the brood at the center of the combs. To do this nicely, one end of a fine wire is tied around the cage, the other end being left eight or ten inches long. The combs being pried apart, the cage is let down between them; and while one hand holds the end of the wire the other crowds the frames together. Then when it is desired to take out the queen, it is easy to see by the end of the wire on top of the top-bars just where the cage is. It is so little trouble to provision the cage that it is generally provisioned, although her own bees would be sure to feed the queen.

When a laying young queen of the current year's rearing is given to a colony that has been treated for swarming, she may be thus put in her cage between the combs. Generally, however, in such a case (as well as in the introduction of any queen) I merely put the cage in the entrance of the hive, up against the bottom-bars. She is put in "fast," that is, the bees can not get at the candy. In two or three days the bees are let at the candy. You will see that having the cage at the entrance makes it easy to take out the cage without opening the hive; and at any hour afterward I can in a minute look to see whether the queen is out of the cage. Another point in favor of this entrance introduction is that G. M. Doolittle, a high authority on any question about queens, says that a queen near the entrance more quickly and surely makes the acquaintance of the colony.

Of course, entrance introduction will not do for a nucleus or a weak colony, nor in a very

cold spell. But in hot weather the bees of a strong colony will never allow a queen to be chilled at the entrance.

Marengo, Ill.

## CONTROLLING SWARMS IN CALIFORNIA.

### Providing Plenty of Comb Room Before the Bees get the Swarming Fever.

BY G. M. DOOLITTLE.

*Mr. Root:*—I have been reading Doolittle's Book, "A Year's Work in the Out-apiary," and I should like to ask some questions Here in California our surplus-honey flow usually comes in June. Now, some of my bees already have brood in five frames. There is, of course, some honey coming in all the time from eucalyptus and some other flowers, so they would commence swarming about the middle of March. If I shake them they will still have time to build up and swarm before the first of June, so what would you do? I have hived swarms on foundation and combs, and even then they usually build up and swarm again; in fact, swarming, I could almost say, is the chief end of apiculture; but if, on the other hand, I hive on starters the combs are usually built very uneven, and mostly drone comb.

Bostonia, Cal., Feb. 17. J. P. R. HALL.

[This was referred to Mr. Doolittle, who replies as follows:—ED.]

I think that Mr. Hall fails to "catch on" to the main idea regarding the non-swarming matter as given in the book, "A Year's Work in an Out-apiary," which is the giving of plenty of *extra comb room* before the bees take the swarming fever.

Under date of February 17 he tells us that his bees have brood in five frames; but if the conditions are with him as with us when we have a colony with brood in five frames in the latter part of April, the amount of brood in those five frames would not be more than two and a half frames *full* of brood, were it all compacted together. Now, under ordinary conditions I am free to admit that such a colony might build up to swarm a month later, or by the middle of March, as he puts it; but if, on the 5th of March, he puts on an upper story of ten Langstroth frames of comb, he will discourage that swarming impulse for from three weeks to a month, so that the bees will work with a vim in storing eucalyptus honey, which is slowly coming in, instead of swarming; and when the time arrives for shaking the bees they will, after shaking, carry what has been stored up into the sections, as given in the book.

But suppose that this *one* upper story will not be sufficient to control the swarming fever until the time is "ripe" for shaking; then just before there was a likelihood of the fever being contracted I would take off the upper hive and the queen-excluder, and put on a hive of empty combs. On top of this I would put the excluder, and the hive which was the top hive before, at the top again. Thus a hive of empty comb would be added in shape so the queen and bees could not only spread themselves to their hearts' content as to storing honey, but as to brood-rearing also, and the top hive still be in good condition for the "shook swarming" when the time for doing this arrived. Surely three ten-frame Langstroth hives will keep any colony from swarming, viewing things from the standpoint of New York State; and if it did not in California, or any other place in the world, then I would, a little later, raise the upper hive of combs and honey, putting another ten-frame hive of *empty* combs under it. With my experience, not one colony in 500 would swarm which had forty L. combs to occupy, half with brood and half with honey. Of course, this will make more labor than will be needed in most localities; but it will accomplish the object we are seeking. When shaking-time comes, use only the upper hive for the brood-chamber as given in my book; but as many more bees will be the result, a large amount of section room should be given at the time of shaking. Then there will be twice the amount of beeless brood to be cared for by weaker colonies. Of course, one shaking could be made in March, where using only two hives to each strong colony, as given in the book, and then shake again in June before the June or second swarming season comes; but I think more section honey could be obtained, with less labor, by the plan first outlined above.

## PRACTICAL INSTRUCTIONS FOR BEGINNERS.

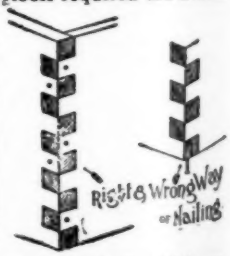
### Preparing for the Honey-flow.

BY E. D. TOWNSEND.

Some time previous to the surplus-honey flow, hives and supers should be nailed and painted, sections folded, filled with foundation, and arranged in the supers ready to be put on the hives when the time comes. Every thing should be in readiness, as a little delay in giving room, when it is needed, may be the means of cutting the surplus-honey crop in two.

NAILING HIVES.

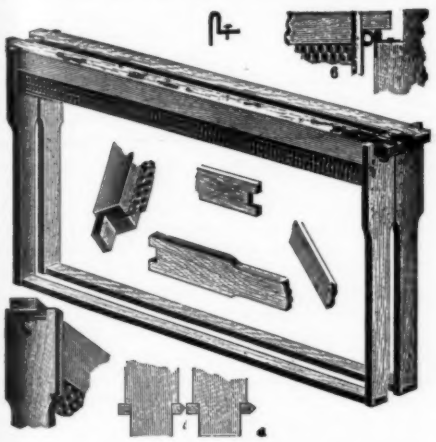
Hives and supers, as they come from the factory, are provided with nails, etc., and in putting them together the only tools required are a hammer and a square. A carpenter would probably have a wooden mallet to use in driving the dovetailed corners together, but a hammer can be used for this purpose, although the planed surface of the wood should never be struck, as it would be marred. A piece of tough wood should be secured that will not split easily, and this placed on the corner to take the blow from the hammer. Before nailing the hives they should be squared; for if they are not made square before nailing, they will never keep so afterward.



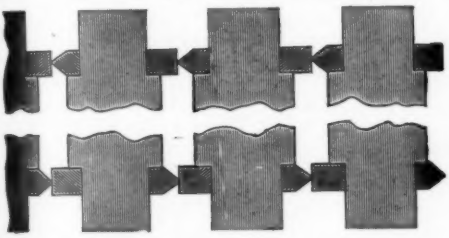

HOW TO ASSEMBLE HOFFMAN FRAMES.

While instructions usually go with each shipment of hives, many do not understand putting

together Hoffman frames. The beginner should take particular notice of the directions that go with each crate of frames, and see that the V edge



and the square edge of the end-bars are on opposite sides. As the frame is held up, as one would hold it when looking for a queen, the square edge should be at the right end of the frame and the



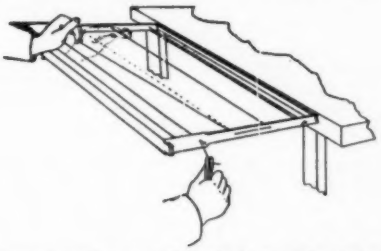
V edge at the left. Frames so assembled will go into the hives either way; in fact, they can not be put in wrong.

Two years ago I bought a lot of colonies in hives in which the frames were nailed wrong; that is, many of the frames had the V edges of the end-bars on the same side. This meant that the V edges would come together in the hives and the end-bars would often slip by each other, making the space too narrow between those two particular frames.

### WIRING FRAMES.

After the brood or extracting frames are nailed, they are ready to wire. We always order our frames pierced and the wire included. We wind this wire on a board three inches longer than half the length of wire that we want to use. The wire is then tied in about four places with a good stout string and cut at one end of the board with a pair of tinner's snips. Each piece of wire will then be about six inches longer than necessary for the frame, the extra length being for convenience in handling. The strings keep the wire from snarling, and yet allow one wire to be drawn out without disturbing the others.

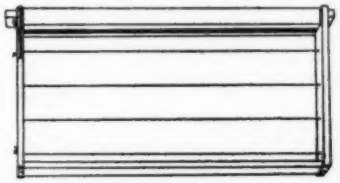
To wire the frame, we drive in the end-bar two of the little ⅜-inch nails that come with the frames, one near the upper hole and the other near the lower one. These are driven only half way in. One end of the wire should now be run through the second hole from the top of the frame across the frame to the corresponding hole in the opposite end-bar, then up to the upper hole in that end-bar, and back to the upper hole in the first end-bar. This end of the wire is now wound around the nail, and the nail driven home. This completes the wiring of the upper half of the frame The other end of the wire should now be threaded through the lower sets of holes in the same way; but before the end is finally fastened the slack should be taken out of the wire.



For many years we threaded the wire into the frame right from the spool, carrying one end through all of the holes in the frame, but the method given above is much the better of the two ways.

### HORIZONTAL WIRING DOES NOT PREVENT FOUNDATION FROM SAGGING.

After wiring thousands of frames horizontally, some with the wires drawn tight and some loose, we have found that the foundation sags about so much any way; and if no provision is made for

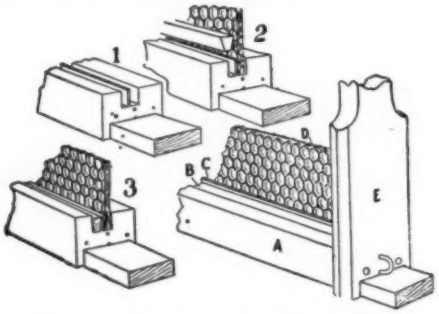


this sagging it "buckles," making the irregular combs that all are familiar with who use full sheets of foundation. The heavier the foundation, the less sagging; so that I now use the medium brood in brood-frames, although the light brood is all right in extracting-frames. As the weight of the foundation must be relied upon to prevent sagging, our frames are now wired loosely in order to hold the foundation in the center of the frame without the buckling that is more likely to be found in tightly wired frames.

### PUTTING FOUNDATION INTO THE FRAMES.

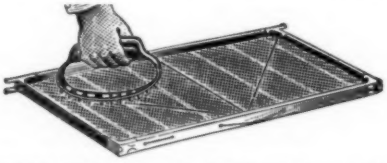
This work should always be done in a warm room or where the temperature is high enough so that the foundation will be pliable and not easily broken in handling. Our brood-frames are all ordered with the double groove and wedge for securing the foundation in the top-bar. The full sheet of foundation should be laid on the wires, worked into the center groove, and then the wedge inserted in the other groove. Right here is where so many fail, for they do not crowd this wedge in far enough. This is quite important, for a little carelessness in doing this will mean that the

foundation will fall out of the frames and make a complete failure of one of the best means of securing it ever devised.




IMBEDDING WIRES INTO FOUNDATION.

We use a smooth planed board, ⅞ inch thick, and the size of the inside of the brood-frames. We lay this board on the foundation now in the frame, and turn the frame (board and all) the other side up. The wires will then be on top of the foundation, and the board on the under side. We have never tried any thing that equals the



Easterday imbedder. It is not quite as rapid as the spur-wheel imbedder, but, unlike the latter tool, it leaves the foundation smooth, instead of creasing it and making a weak place. After the wire has been crowded down into the foundation a few drops of wax near the ends will help to keep it in place.

The lower edge of the foundation should be trimmed off in order to leave about a half-inch space just above the bottom-bar of the frame. We take a narrow board the length of the inside of the frame and ½ inch thick. We use this board as a guide for trimming off this lower edge of the foundation. We stand it on edge next to the bottom-bar, and with a thin sharp knife cut off that portion of the foundation by means of the straight edge thus afforded. If the space between the foundation and the bottom-bar is much less than half an inch the foundation is likely to sag; and when this happens it tips over to one side (buckles), and makes one of the most undesirable combs imaginable.

PAINTING HIVES AND SUPERS.

In the spring, after most of the freezing weather is over, we do our painting. We have had a long experience with lead and oil, and also with prepared paint; but we use only the prepared paint now. A new hand can do good work by using prepared paint, while the mixing of lead and oil is a trade in itself. Even the prepared paint, however, should be thoroughly stirred before it is used. We use nothing but white paint on our hives and supers, and we make sure that the paint contains nothing but pure lead and oil, although some of ours has a little zinc added also, to be used as a last coat to give a hard glossy finish. We buy the paint in one-gallon pails, and then use an extra two-gallon pail besides. The paint is well stirred, and poured from one pail to the other until it is thoroughly mixed. For the priming coat two or more quarts of oil can be added to the gallon of paint, before stirring, to thin it. Buy paint marked for outside use, and thin the first coat with raw oil.

There is a knack in applying the paint, for it should be rubbed well into the wood. Apply several thin coats rather than fewer thick ones. The same amount of paint is much better applied in three thin coats than in two thicker ones. For the second and third coat not much oil will be required in thinning the paint usually found on the market; but if it appears rather heavy a little oil should be used, especially when the pail becomes nearly empty. Each coat should be allowed to get thoroughly dry, of course, before another is applied.

Remus, Mich.

## CONDITIONS ALL RIGHT IN OKLAHOMA.

BY F. W. VAN DE MARK.

On page 39 I see a letter from Mr. G. E. Lemon, of this State, in which he complains of finding nothing in GLEANINGS from Oklahoma. If he will look on the front page of the Oct. 15th issue he will see a nice view of an apiary belonging to Mr. J. T. Hairston, of the eastern part of the State. He need pay no attention to what is told about the wind, as the bees know how to take advantage, and, except a few days in the spring, I have never found that they did not do all right Around Garden City, Kan., and all the western part of the State where alfalfa is grown, it is very windy; but, as in Eastern Colorado, their bees do well.

The worst trouble we have to contend with in Oklahoma is *starvation* caused often by too much honey being taken away; for as we are all beginners, a tendency to take too much honey is hard to overcome; however, our open weather during December allows us to remedy this by feeding. Our most critical time here is from April 20 to May 15. Bees commence raising brood during February. The first half of March, being nearly always very warm, brood-raising is in full blast, caused by pollen-gathering from the soft maple and elm, fruit-bloom coming on also; then, about the 20th, the cold or extra windy weather sets in, so the bees gain very little from the fruit or black-locust bloom. If the weather stays warm, swarming often begins the first week in April. This is all right if the good weather continues. Often, however, it turns cold, and these new swarms can't get out to work; and the others, being full of bees, and their stores all used up, starving sets in the last of April and first of May. Often the first indication the owner sees is the young brood being dragged out by the hundreds. This weakens the colony so that they hardly recover in time to store any surplus. This can also be overcome by feeding if these weather conditions prevail. I have found, after fifteen years, that the only safe way is to see that the colonies have sufficient

stores in the fall, protection from the north and west winds from Jan. 1 to March 1, only one swarm allowed to the colony, and we are assured of from 30 to 100 lbs. of fine honey per season per colony.

Stillwater, Okla., Jan. 10.

## ANOTHER WHO REGARDS THE CONDITIONS IN OKLAHOMA FAVORABLE TO BEES.

BY N. FRED GARDINER.

In reply to Mr. G. E. Lemon, on page 39, Jan. 1, I will volunteer a little of my experience and opinion in regard to bee-keeping in Oklahoma. As I have neither bees nor supplies to sell I believe my statements may be accepted as unbiased. I have been told all the things by neighbors that Mr. Lemon has, and many more, and have proven them all fallacies. I have kept bees on a small scale at this place, at Guthrie, Okla., and in Sumner Co., Kansas, for a number of years, and have never yet lost a colony on account of weather conditions, and there has never been a season with me when I did not get at least a little surplus. I think Mr. Lemon was showing those neighbors a few things when he was taking off those sections and putting on the third super.

I have never been able to approach what is considered a large yield; but as I can readily get 20 cts. per pound here for my honey it helps to balance things somewhat. This past season, from six colonies, spring count, I took 330 pounds of honey; comb and extracted about equally divided, and sold one swarm when it issued.

As to the high wind, I usually reply that, when it is too windy for the bees to be out at work, it is too windy for a man. This may not be literally true; but it does not miss it so far, for bees will work in a pretty strong wind if the hive is so arranged that they can come in with their loads safely. As our prevailing winds are from the south I always have my hives face the north. Then the loaded bee drops down on the sheltered side of the hive instead of being beaten back from the entrance many times by the wind before gaining a foothold. If you have never given this a trial the difference will astonish you. Of course, it is necessary to watch that the occasional snow or sleet does not choke the entrance and smother them during the winter; but there are so few of these in this State that it is not much of a task.

The open winters do entice the bees to fly a great many days; but there is nothing to cause them to fly very far, and the changes would have to be quicker than the ones for which Oklahoma is noted to catch many of them away. I believe, though, that the open winters do draw heavily on the stores on account of the bees being active so much of the time, and I am always particular to see that the hives are at least as well shaded in the winter as in summer, thus keeping them as cool as possible.

In my opinion the spring requires the most attention, as bees often make quite a start in brood-rearing, etc., during fruit-bloom, and use up practically all the honey left from the winter, only to be confronted with two or three or even ten days of weather when they can not leave the hive and all the brood to feed. Last season I had a swarm on the 21st of April. They were hived on full sheets of foundation which was all drawn out before this kind of weather came, and had to be fed, as they had gathered but little honey. I do not doubt that, to make any success with bees here at present, requires a little more attention than in some other States; but I know they are not a failure by any means, and conditions are getting better every year. I trust this will be of some encouragement to my neighbor if he is still in need of it.

Geary, Okla., Jan. 20.

## A LATER REPORT OF THE CONDITIONS IN CALIFORNIA.

BY M. H. MENDLESON.

If favorable weather conditions follow the wet winter that we have had, we may have some sage honey again after waiting four years for it; but this spring has been unusually cold and backward, and the bees are six weeks or more behind. We usually have swarms in March; but this season we had none, and the colonies are now of only moderate strength. Unless we have fair weather soon, in many apiaries large numbers of colonies will be lost from starvation, as, so far, there is not enough new honey coming in to keep pace with the consumption of the old stores.

Here is where those colonies are ahead that are provided with the extra amount of stores. I have never seen this plan fail to be profitable.

### IMPORTANCE OF HAVING ALL THE HONEY OF THE BEST QUALITY, AND THEN GRADING IT CAREFULLY.

If we are successful this year in producing honey, would it not be well for us to consider thorough ripening of the honey so that it will be thick and ropy beyond criticism. Well-ripened California honey has no equal as to keeping qualities or flavor; but it must be mellow and thick. We can not afford to take any further chance on the good reputation of our honey. I do hope our large producers will take this advice into serious consideration, for the future sales and prices will depend on quality. Thin souring honey will lessen our sales, while the well-ripened article, free from specks, will increase the amount consumed and advance prices.

Some of our large buyers came to me recently, requesting me to mention the importance of skimming all honey thoroughly before drawing it off into cans, and saying that it should not be drawn too close, as this results in many of the "specks" getting into the cans.

The producer who regards the quality can command prices, and will always find ready sales; while one who pays little attention to quality, and is indifferent in regard to the grading-rules, may find much of his honey rejected by the carload.

We should be careful also to grade our honey. Each extracting and each tankful from each apiary should be lettered and numbered. I have my apiaries lettered, and each extracting of uniform grade numbered. For instance, my home apiary is lettered E; the initial letter of the apiary, and the first extracting is, therefore, E1; the

second, E2, etc. All of the shipping-cases are lettered and numbered on the lid. In this way there is but little chance of mixing the grades.

Cases of extracted honey should never be piled more than three tiers high in a car, and I prefer but two tiers. If there are more than three tiers the danger is greater on account of the rough switching.

Ventura, Cal.

# HEADS OF GRAIN

## FROM DIFFERENT FIELDS

### MOST OF THE SHIPMENTS OF BEESWAX AND HONEY ARRIVING IN NEW YORK ARE IN TRANSIT FOR EUROPE.

I take this opportunity to inform you of the arrival in New York of shipments of beeswax and honey for the year 1908, which, by the way, shows the largest imports for many years back. The increase, however, is not in the amount for consumption in the United States, but in goods that are in transit for Europe.

*Beeswax.*—The total arrivals at New York for 1908 were 6636 packages, which, at an average weight of 200 lbs. per package, equals 1,327,200 lbs. Of this quantity, 4144 packages, or about 828,800 lbs., were in transit for Europe, leaving only 2492 packages, or about 498,400 lbs. for consumption in the United States.

*Honey.*—The total arrivals at New York for 1908 were 16,427 packages, which, at an average of about 60 gallons per package, equals 985,620 gallons. Of this quantity, 11,880 packages, or about 712,800 gallons, were in transit for Europe, leaving only 4547 packages, or about 272,820 gallons, for consumption in the United States.

The number of pounds and gallons given above are only estimated, as it would be difficult to state accurately the quantities arriving. Beeswax comes to this market packed from small cases of about 50 lbs. to large cases and hogsheads containing from 500 to 1000 lbs. each, while honey comes in half-barrels, from 30 to 35 gallons, to large tierces of about 100 to 110 gallons. However, you will note from these figures that comparatively little foreign beeswax and honey comes to this market when the consumption of these articles in the United States is considered.

D. STEENGRAFE.

New York, March 26.

---

### HOW THE HONEY MARKET IS INJURED BY THE BOTTLING OF INFERIOR HONEY; A CAUTION IN REGARD TO THE USE OF SMOKE.

The injury to the honey market by the bottling of inferior grades of honey, and the spoiling of good honeys by the blending therewith of the inferior grades, is something that should have attention. This truth has been forced upon me by the fact that many grocers can sell so little bottled extracted honey that they think it not worth handling; while on the other hand I have many private family customers that use from 25 to over 100 lbs. annually. We have one customer who is very fond of our dark natural blend of buckwheat, goldenrod, and aster, and will, at the present rate, use up over 250 lbs. during the year. Does not this show that, if the people had confidence in what the grocers handle, and were not so often fooled with inferior honey, not to say adulterations, there would be a consumption of honey that would make the selling of it a more remunerative and attractive business by the distributors?

One point about capping-melters has not been touched upon. I refer to the care that should be exercised in the smoking of bees. Much good honey has been ruined with smoke. Well-capped honey does not contain a smoky flavor, because the cappings with the smoky surface are removed. If you melt those badly smoked cappings and turn the honey into the tank with the extracted and unsmoked honey, you have injured the flavor. Take cappings that have been drained. The first drainings are not badly smoked, but the last tailings are unfit for table use. The remedy is to use the bee-escape with as little smoke as possible. The small amount of smoke, together with the leaving of the super on the hive several hours after the smoking, will add greatly to the lessening of the odor.

OREL L. HERSHISER.

Kenmore, New York, Feb. 15.

---

### BEES REFUSING TO BUILD CELLS IN COLONIES WITH CAGED QUEENS.

I had two colonies built up from nuclei, having first bought the queens. I wanted to increase them as far as possible by dividing. Some writer in GLEANINGS said, "Cage the queens three days in their own hives, then put them back seven days, I think; and at the end of that time divide up, giving two or three frames to each nucleus, leaving the old queen on the home stand, and being sure each nucleus had queen-cells," etc. I did this, but the bees refused to start queen-cells at all, so in the next issue Dr. Miller said, "Better way, take the queens away from the hive three days," which I did, and the cells were started all right; but he failed to tell what to do with the queens; so, not knowing any better, I caged them and put them with several attendants above a strong colony with wire screen above and below, thinking they could not be hurt there; but, to my surprise, the second day found them all in the cage, killed by little black ants. The ants had not before nor have they since bothered the colony where I put them.

Greenville, Ill. J. F. BUCHANAN.

[Unless it were warm weather, and the bees were flying to the fields, the bees would not be inclined to build cells, and some strains would build none as long as the queen was caged within the hive. As a rule, the average colony will do so during the working season. Dr. Miller's suggestion, to take the queens away entirely, was the only thing for you to do under the circumstances; but now you want to know what to do with the queens that are removed. They can be caged just as you did, and put on top of other colonies that already have queens, and left there for three or four days, or longer if deemed necessary. Be sure to put the cage in in such a way that the wire cloth will be face downward. The younger bees of the strange colony will feed the

queens while so confined. To provide against absolute starvation, be sure that the cages contain a soft bee candy. In your case the little black ants got at the queens and killed them. If you are troubled with that pest we would advise you to set the hives up on short legs, and put the legs in sauce-dishes of water or oil.—ED.]

### A HEAVY PENALTY.

In Judge Pierson's court at McPherson, Kan., the other day, M. W. Kiby and R. Lackey, from Nebraska, were fined $25 each and sent to jail for fifteen days for selling a manufactured imitation honey for a pure honey, which had only three pounds of pure honey to fifty pounds of the finished product, being composed of glucose, citric acid, soap bark ground, coal-tar honey flavor, and colored to look like honey. The inspector says it is one of the best imitations he ever saw. The stuff which the two men were selling cost them about 4 cents a pound to make, and they were charging 15 cents a pound, or two pounds for a quarter for the stuff.—*American Grocer.*

[This, of course, does not refer to *comb* honey but to a decoction in liquid form. The words "manufactured imitation honey" are misleading in that they give the impression that comb honey is meant. It is such loose ways of writing that give rise to the comb-honey lies.—ED.]

### CAN ONE KEEP HIS BEES IN THE CELLAR TOO LONG? FEEDING BEES IN THE SPRING; DISPOSING OF CROOKED COMBS.

Will you kindly answer the following questions by return mail? Am I right in keeping my bees in a cellar while I can hold the temperature down to at least 48, and bees very quiet? If I can hold these conditions, would it not be well to keep them in until the 15th?

Would you feed bees in spring that have sufficient stores, simply to stimulate the rearing of brood early?

I have several colonies that have crooked, tangled brood-combs, that it is impossible to take up for examination. Would you transfer to hives arranged with full-sized frame of comb foundation? If so, what time would you select?

Manawa, Wis., April 4. E. E. COHEN.

[We would advise you to keep your bees in the cellar as long as they are quiet and seem to be doing well, and so long as there is a liability of bad boisterous weather coming on the outside. In your locality we would not advise you to keep the bees in later, probably, than about the 20th of April, certainly not later than May 1st. Should the bees become uneasy, and disposed to fly out on the cellar bottom, or should you have difficulty in maintaining the temperature to the proper point, we would recommend taking the bees out along in March; but if possible, give them winter cases or some sort of protection over the hives.

As a general thing, we do not advise feeding bees in the spring that have sufficient stores. Stimulative feeding has a tendency to force the bees out in unfavorable weather, and most of our best bee-keepers now advise against spring feeding, but giving the bees copious supplies of stores in the fall—enough so that they will have no lack until the honey harvest is on. Of course, circumstances alter cases.

The crooked or otherwise imperfect combs, especially those that contain an excess of drone comb, should be melted up. If one works right, he will be able to secure enough wax by the operation to pay for the foundation that he puts in his frames. It is very wasteful to have drone combs and crooked combs in the yard. It pays, and pays well, to have all combs as nearly perfect as possible, and all worker.—ED.]

### SHOULD SHAKING BE PRACTICED TO CURE SULKING?

Just now we hear much about shaking bees to cure laziness. Now, come to think of it, who among experienced, thoughtful bee-keepers is there that believes there is such a thing as a lazy honey-bee? Whenever a colony of bees is found apparently sulking, there is something the matter with that hive which the person in charge should discover and remedy before making the charge of laziness, or making the cruel statement regarding a queen that has filled the hive so full of bees that they hang out for comfort, that "it would not have been a very bad accident if we had dropped that queen and stepped on her." Could that colony of bees have been transferred to the new condition, without the slightest shaking, they would have exhibited just as much vigor as though shaken however severely. It seems they went to work with such energy that, with the hot day, they quite overdid the matter. Perhaps they were shaken "jist a leetle tu much." It's a wonder that the hot day and the breaking-down of the comb were not charged to their account.

Oh, my! How much the poor bees and queens have to suffer because of the ignorance or the lack of careful observation of the bee-keeper! How often an incident is taken for a cause—as though the noise behind the projectile fired from a gun is the cause instead of an incident!

Evanston, Ill. WM. M. WHITNEY.

[While doubting the efficacy of shaking, our correspondent (and he is a good bee-keeper) does not say what he would do to cure sulking or laziness. Perhaps he infers that every one already knows; but there will be some, like the man from Missouri, that will "want to be shown."—ED.]

### DO BEES FLY FROM CHOICE FROM TWO TO FOUR MILES FROM HOME? FURNISHING ALSIKE TO FARMERS.

It is not often the Root Co. make a serious mistake in their business; but I think they are making one in the way they supply the farmers in their vicinity with alsike seed. You supply it free within a quarter of a mile of your apiary, and half price further away. Now, as bees "fly from choice from two to four miles" (see Doolittle, page 194, April 1, would it not be better to supply alsike seed free to be sown from two to four miles from your apiary? This would give you a belt around your apiary two miles wide by twelve miles long; and as farmers use a three-year rotation, one-third of this, or 5000 acres, would be in clover; and as the seed would be free, most of it would be in alsike. Within this two-by-four-mile belt, and between the two-

by-four-mile-belt and the seven-mile limit you should charge half price for seed. Of course, there might be some apiaries within the two-by-four-mile belt; but as they "fly from choice from two to four miles" they would fly beyond the fields on which your bees were working.

It is fifty years since I owned my first colony of bees, and this talk of bees flying two to four miles from choice, or seven miles from the hive, is all folderol. THOS. W. ODLE.

Ridgeville, Ind., April 9.

[Your last paragraph shows that you are not poking fun so much at The A. I. Root Co. as you are at our old friend Doolittle. The real question at issue, then, is not whether it pays to furnish alsike seed free or at half price; but as to whether bees from choice fly from two to four miles from home. This is a matter that depends very much on locality and the honey flora. In our locality (and we have no hills to speak of) bees do not generally go over 1½ miles from home, and most of the nectar is carried a much less distance than that. We have tested this, time and again, by tracing the flight of our bees to outyards, and in every case but few bees went beyond a mile and a half, and most of them would go under a mile.

But in a hill country, bees will fly much further, particularly if there is a broad expanse of valley between two big hills. We believe bees have a sort of telescopic vision; and if, for example, they can see a white patch of buckwheat two or three miles away, and there is no pasturage nearer, they will go to the distant field. We saw that demonstrated at the apiary of the late E. W. Alexander. We could easily trace the bee-line flight to distant buckwheat-fields some two, three, and even five miles away. Mr. Alexander told us that he had driven over to some of these distant fields just to satisfy himself, and he found his bees making a bee-line to his apiary. This explains why he could keep so many bees, 700 colonies in one yard. Mr. Doolittle lives in a country very much like what we find at Alexander's.

Another thing, the aroma of a buckwheat-field when in full bloom will, we believe, travel further than that from any other honey-plant. The scent of bees is very acute. Where buckwheat grows they would go further than at Medina, where we have very little; yet when we take this all into consideration it seems a little strong to say that bees *from choice* will fly four miles. We should like to hear from some of our subscribers. —ED.]

---

### IS THERE DANGER OF THE BEES STINGING HORSES?

I am living on a rented lot. The man who is carrying on the surrounding farm has notified me that my bees must not sting his horses. He is trying to make me trouble because he has been reported to the humane officer for abusing his horses, and he thinks me the culprit. There are only a few days in the year when they work in the meadow, and there has been only one day when my bees troubled the men or horses that I know of. I have had them three seasons. They are Italians that I bought.

Can I place my bees anywhere on this lot and keep within the limits of the law? This man will probably be here only till November, and we'd rather not move if we can keep out of trouble here. I have only four colonies. I shall be very much obliged to you if you will advise me.

MISS GENEVIEVE C. HORSFORD.

Charlotte, Vt., April 7.

[As a general principle we may say that you have a right to put your bees anywhere on your own premises so long as they do not interfere with the rights of others. In the case you have given, the complainant, as we understand it, has sustained no serious damage; he only *assumes* that his horses may be stung. He has no legitimate ground of complaint, and he can not force you to move them—at least until he sustains an actual damage. We would suggest putting the bees in the garden about half way between the barn and the highway. If you are careful to allow no robbing among your bees, no one will ever have a real ground for complaint. Your neighbor can not force you to move the bees under the conditions that now exist.—ED.]

---

### JAPANESE OR SILVERHULL BUCKWHEAT.

Can you inform me as to the kind of buckwheat that is best for bees? I saw an article in GLEANINGS about a man who raised it over by the Hudson River. We have the Japanese and the silver-gray. I should like to know of the man who has some of the new kind to sell.

Groton, N. Y., April 5. C. W. PIERCE.

[Some of the bee-keepers in Eastern New York are beginning to abandon Japanese buckwheat, and are using instead the old silverhull and gray buckwheat, thinking they get actually more weight of seed; and from the standpoint of bee-keepers the statement has been made that more honey is secured from these latter than from this mammoth variety of the Japanese. We are not prepared to give a definite opinion based on our own experience, but we suggest that you try either the silverhull or gray this year, and, if possible, another field of Japanese side by side. We should appreciate it much if you could give us a report of what you find, which report we should like to publish in GLEANINGS. In the mean time we should be glad to get the experience of others. —ED.]

---

### SIMPSON AND SPIDER PLANT.

I notice in the A B C book a plant called the Simpson and spider plants. Would you advise a new hand at the bee business to plant either of these plants? I own a small farm here, and am trying to get started in the bee business.

Princeton, Iowa. CYRUS BRIDGES.

[While the Simpson and spider plants, spoken of in the A B C of Bee Culture, are remarkable for the amount of honey they will furnish, we do not advise setting them out for just the nectar that one would be able to secure from them. As a general rule we may say that artificial pasturage does not pay unless it yields some valuable product aside from the honey. Alsike, buckwheat, and, in fact, any of the clovers, are profitable honey-plants because they yield seed, hay, or both, as well as nectar.—ED.]

# OUR HOMES

BY A. I. ROOT

My God, my God, why hast thou forsaken me?—MARK 15:34.
Shall not the Judge of all the earth do right?—GEN. 18:25.
Be still, and know that I am God.—PSALM 46:10.

Dear friends, since I last talked to you I have been down in "the valley of the shadow of death." Excuse, please, a little preliminary introduction. There had been a little discussion as to whether we had better undertake to get away from Florida and go back to our home in Ohio as early as the first of April; but there were so many things I was anxious to get hold of in my old home that we finally decided it would be safe, especially as we did the same thing a year ago. We had a very pleasant trip until within a short distance of our home. Down near the middle of this State a couple of cars got off the track, and that necessitated a delay of several hours in a little manufacturing town. Of course, I was disappointed to be so near home, and yet compelled to wait there with nothing to do; but I remembered what I have often said to you about inquiring what new lesson the Lord has to teach us whenever our plans are interrupted. So I decided to run around the town a little and look it over. It is hardly more than a railroad crossing, and the beer-saloons in almost every direction indicated that it was, at least so far, a wet town. As there was a cold March wind that day, we went to a hotel, got a comfortable room with a fire in it, and ordered dinner. I soon found there were murmurs of dissatisfaction all over the town because the glass-factory that gave employment to the principal part of the inhabitants had shut down. I wandered over to that factory, a great big structure, to see what I could learn. It was a *bottle*-factory. The fierce temperance wave in Ohio had indeed broken up an industry that employed great numbers of men, and perhaps some women and children. Our State of Ohio, especially the central part of it, is great on glass-factories, and I should not wonder if our State makes more *whisky-bottles* than any other State in the Union. In fact, I do not know but Ohio *originated* the little flattened pocket-flask. We used to call it the hip-pocket whisky-flask; and I do not know but these very *hip-pockets* were invented to carry the bottle of whisky. These whisky-flasks are scattered all around over Ohio; and not only that, but possibly over *all the earth*, or pretty nearly so. We see them where they have been thrown out of car-windows, and we see them scattered around pleasure-resorts from Florida to California, and everywhere else. Where nature has something wonderful to offer that ought to raise better thoughts to God we find *whisky-bottles* thrown around. Sometimes they are thrown against the rocks, where there is beautiful natural scenery, and God's domain is disfigured by broken glass and the smell of whisky. Thank God, this is not as bad of late years as it used to be; but the time was when one could not go near a fairground without seeing whisky-bottles lying in the road. During our county fairs people used to cross our garden in going over to the fairground; and after every fair a great lot of whisky-bottles were found scattered around.* During our Ohio State Fair several years ago I saw almost a carful of boys in their teens, each one supplied with a bottle of whisky. Thank God, such scenes are nearly past and gone. Adjoining the big glass-factory there was a great heap of damaged and broken bottles —scrap to be worked over whenever the factory should start up again if it ever does. Well, there was much complaint over all that little town about the cessation of their business. I learned that some of the expert glass-blowers made from six to seven dollars a day when the factory was running. The population was mostly foreign, and they could not quite understand why their particular industry was not as praiseworthy as any other, nor why the Anti-saloon League had not done them a *terrible wrong* in killing out the very life of their little town.

I arrived home feeling pretty well, and rather enjoyed picking up the odds and ends of things I had dropped the fall before. Among other things I soon got down into the apple-cellar to see what shape the apples were in. For several weeks before, we had had no apples, and I was hungry for some. I ate only a few the first evening after getting home You remember what I have said about apples being the "best medicine in the world." Two or three days later I made a pretty good meal of apples, eating about all I wanted, shortly before going to bed, as I have done for years past. They were not of a very good quality, however, for they were mostly Ben Davis and Rall's Janet. They were rather wilted besides, and not as digestible as apples would be in better condition. I had caught a little cold before I ate the apples. In fact, I was thinking about calling our family physician to ask him if he could do any thing to ward off my getting the grip by coming home so early. At the time of his call I was sopping my nose with my handkerchief. In fact, my handkerchief soon became so unpleasant to handle that I wanted a clean one every two or three hours. I said, "Doctor, are you of the medical profession able to do any thing to ward off a cold like this, say in a short time?"

Perhaps I should remark that, while I wiped my nose, there were various aches and pains in different parts of my body. He replied:

"Yes, I can stop that dripping from your nose, and these pains, in just a few minutes"

By the way, during all my life I have never had much faith in any remedy for a cold. The doctor smilingly gave me some tablets, saying, "Here, take one of them, and in just a few minutes you can put away your handkerchief."

Sure enough, in fifteen or twenty minutes the pain had abated and I could put my handkerchief in my pocket. I said then and say now, "May God be praised for the advance that medicine has made, since I can remember, in relieving human suffering!" Just think of a little tablet producing such effects! Before he went away he said something like this:

"You have the grip. It is not *yet* grip fever, and we hope we can get along without the fever."

Perhaps I may remark here that I did not ex-

* Yellowstone Park is almost the only place where I have found no whisky-bottles. Severe police regulations forbid dropping any bottle or tin can anywhere; but for all that, I saw, God knows, enough whisky drank *out of* bottles.

actly obey the doctor's orders. He expressed his opinion in regard to a certain matter, but left it subject to my judgment. I supposed I had about gotten over the grip, and started to do some work. When he came again he said, "Well, sir, you have grip *fever* this time, sure."

"Do you mean, doctor, that I have got to have a run of fever? Does grip have to have its run like other fevers?"

"It generally has a run of ten or twelve days, but we will try to evade it if we can."

But we did not "evade it." If some one would offer me a thousand dollars to go through again what I did during those ten or twelve days, I would refuse it. If, however, by so doing I might guard or warn somebody else from falling into the same pitfalls, then I *might* undertake it. Booker Washington tells us in his book that he finally came to a point where he could thank God that he was born *black*, because now he could do work for his people that he never could have done otherwise; and I hope God will give me grace to be willing to bear affliction when it may be the means of helping some other poor soul to escape. Now, there is a question right here that the doctor did not decide, and that I can not decide. Was it the lot of corky apples that I ate when I was not used to them, that gave me the grip, or was it the grip that prevented the apples from digesting and getting out of the way as they usually do? Perhaps both together. It was a bad combination. I really did not feel chilly when I was running about after I arrived home; but I think now I was not sufficiently careful to be bundled up with overcoat, fur cap, and thick overshoes, etc., until I became better acclimated. My wife urged heavier undercloth-ing; but as it was then quite warm, I felt sure I did not need it. When the grip fever got its "grip" on me, every thing was at a standstill. My digestion stopped, my appetite was gone. Let me say briefly, I did not get entirely rid of those undigested apples for nearly two weeks. I have been watching my digestive apparatus closely for years, so I knew what progress things were making; and it was not until that decayed "apple pomace" (for that is what it looked like) was gotten out of the way that I began to get better. Gradually nature began to reject every thing in the shape of food or nourishment. I tried a baked apple, but it gave me such distress for hours in trying to vomit it up (but couldn't) that I made no more experiments of that kind. I tried a little juice of grape fruit, with perhaps the same result. Nature rejected any thing and every thing. Beef-tea extract, that has always been agreeable to me, was simply nauseating. Day after day passed without a bit of food. The doctor finally said we would have to *force* a little nourishment down in some way.* I told him it was no use.

Let me give you a little illustration. I took a little bit of dry toast in my mouth, and chewed it up very fine, thinking nature would certainly furnish a little saliva to start digestion; but the bread seemed like just so much pulverized sand. There was no taste to it. It stayed in my mouth, and would have been an annoyance and trouble if I had not washed it out with water. The stomach seemed to be gone, the gastric juice seemed to be gone. I could not sleep. The minute I shut my eyes the delirium and fever set me almost crazy. I did not even know my own name; and, to add to my troubles, somebody was continually telling me to get out of the way. They were going to tear the house down to build a railroad there, or something else, and we had to "get out." I tried to maintain it was my own house; but my tormentors laughed in de-rision. Just one little circumstance: Of course, in my mind wanderings I thought of chickens; and when these fellows told me I must begin to get out of the way I called to a bright-looking little girl and said, "Please help me catch the chickens, will you, and put them into the basket carefully?" And then I chased off after some in another direction. Pretty soon I heard that girl say, "'Put them into the basket carefully!' this is just the way *I* do it;" and as she caught one after another she hit it a blow with her fist that crush-ed its little life out. And before I could stop her I heard shriek after shriek of the dying agonies of my little pets. Things like this were being enacted constantly, to provoke my wrath. Burglars and highway robbers seemed prowling about everywhere. I looked over the side of my bed, and saw them crawling around in my room. When it was night I counted the minutes before it would be daylight; and when daylight came I longed for the night again. At that time the doctor said, "This mental anguish and torture is the outcome of a lack of food. We must give you nourishment in some way to stop it."

All this time there was such a nausea in my stomach that I could not bear the thought or sight of food. Said he, "We will make you some beef juice, and you *must* get it down in some way." They did so; and, oh what joy I felt as nature took hold of the beef juice and be-gan to appropriate it! Last winter I greatly en-joyed watching the growth of the embryo chicks in the incubator. I saw the blood-vessels push out so rapidly that there was quite a change in even a few hours. And then I have seen the em-bryo chick grow until it nearly filled the shell. Well, it seemed to me as if this beef juice took hold and spread off into my blood, and gave me strength and life, just as the chick grew in the shell. They gave me only a few spoonfuls; in an hour or two a little more, and so on as I could bear it. A little later some finely ground broil-ed beef. Of course, this is just the Salisbury treatment of years ago. How memory brought back the time when it was my great privilege to be most intimately acquainted with Dr. Salis-bury, who gave the world the results of his ex-periments and *great success* in feeding sick peo-ple beef and beef juice!* The beef gave me strength, and speedily raised my hope and spirits; and although several days have passed, as I write,

* Years ago, while in Portland, Ore., I had a relapse of malarial fever. I sent for the best doctor in the city, and he said I must not attempt to take a particle of solid food. I could not digest it—take nothing but milk. I said I could not bear the sight of it. "Then take nothing at all until you really feel hungry for milk. Nature will let you know when it will do good." At the end of about two days the milk tasted good, and I came out all right. With this *grip* fever there is an objection to milk because of an almost continuous raising of mucus that seems aggravated by milk.

* If any of the exponents of vegetable diet can furnish any thing to take the place of beef juice, in cases like this, I shall be glad to hear of it. I have for years past tested a great lot of the most-lauded invalid foods.

I enjoy my meals, prepared almost wholly of ground beefsteak, more than any food I ever enjoyed before in my life. Nature seems to call for it *just now*, and for nothing else. May God be praised for that noble animal that converts the grass of the fields into wholesome food for a world of people, especially for invalids! It was nearly forty years ago when I was so enthusiastic in regard to the Salisbury treatment and the beefsteak diet. I have wandered away from it many times during the years that are past; but I have generally come back to it sooner or later. May God forgive me if I ever again lose faith in good lean meat as food for mankind, especially *ailing* mankind. During all this siege, of course I had plenty of pure air. The doctor directed having the windows opened and kept open day and night. At the same time I drank great quantities of pure soft water. This cleanses the system and washes out the poison. This grip fever is certainly a contagious disease. I had a most emphatic illustration of it that I can not well mention here. The patient should be put in a room by himself. May God be praised that our State of Ohio is not only making great progress in fighting the great white plague, but also in fighting fevers of every kind. A great emancipation is coming to the world in the way of *avoiding* sickness, pains, and untimely deaths.

I am now ready to give you some of my spiritual experiences during this fever. I kept asking myself what lesson it was that God was striving to teach me. I have told you several times that my little prayer, "Lord, help," has never failed. Either the help has come, or grace to bear it; and the answers to my prayers for the past few months in this way have been simply wonderful. During the torture of this grip fever, especially at the first, I did more praying than ever before, or at least for a long while back. But my prayers did not seem to be answered. My *spirituality* seemed to be dead. I called to mind God's precious promises all through the scriptures, and I came to him claiming those promises; but there did not seem to be any answer. So much of my mind was occupied with delirium that I hardly knew I had any existence at all, and I somehow seemed to lose faith. I remembered thinking once that I had not prayed at all for the past two days, and I went over my past life. I thought of these Home papers, of the hopeful and encouraging words I have given you, of the scripture texts I have quoted, of the instances in which God has lifted his children out of the Slough of Despond, and in the agony of despair the words came into my mind, "My God, my God, why hast thou forsaken me?" Then I thought of the dear Savior; that it seemed to "please God" to let *him* pass down through the valley of the shadow of death. Then I thought of Job when his wife said to him, "Curse God and die." What did she mean by that? Could *death* help matters? While I was trying to take courage in things such as Job expressed, I had an experience that seemed to carry a moral with it. I felt as if I had indeed gone down into the depths of Hades; and not only that, but when God refused to hear or answer, it seemed to me that Satan took it on himself to answer. First let me illustrate how slowly and painfully the hours and minutes seemed to drag along.

By my bedside is an electric clock that I have told you about. The three little batteries were supposed to run it a year. When I went away last fall the year was up, and I provided some new batteries, but told them to let the old ones remain as long as they kept the clock going. Well, those three little batteries are running the clock still. The clock has not run down nor been touched for over one year and eight months. A little electric light was fixed to shine on the face of the clock so I could see how the time passed. I looked up one night, and it was a quarter past three. The hands of the clock were together. I watched for quite a little while, but they did not seem to separate. Said I, "Well, that faithful little clock has stopped at last," and I turned my face away. I looked back again a little later, thinking I might have been mistaken after all; but the hands had not separated. I turned away again with a kind of disappointed feeling, thinking that, as those little batteries had finally failed, so I was failing. Imagine my surprise, a little later on, to see the hands *were* moving after all. It really seemed as if the machinery of the whole universe was dragging—that every minute so filled with torture and torment was being spun out into a quarter of an hour. I kept thinking of the wretched man who begged that Lazarus might dip his finger in water and cool his tongue, "for," as he says, "I am tormented in this flame." I did not care, perhaps, so much for the *drop of water*; but, oh how I did long for one of neighbor Rood's Excelsior strawberries, so tart and delicious, that we have been enjoying more or less every day all the past winter!

Well, while I was thinking of this parable of the rich man and his suffering, *Satan* came to give me some consolation. He said, "Mr. Root, you have had but a little taste of suffering. Now, you Christian people teach that this is to go on forever, and that there is no respite. You saw how one minute could be spun out until it seemed to you like an hour; and yet you say a man has no right to cut off his life. Listen! There are thousands and thousands who wish they had never been born; and it would have been better for them that they never *had been* born. What is this existence worth, anyhow? What is human life worth? If all that these people teach about everlasting punishment is true, there could be no greater boon to humanity than some invention whereby annihilation could be quickly and easily secured. You used to have faith in Bible promises; you have quoted them all your life; but thousands, like yourself, have found that they do not amount to any thing after all. God's promises have gone into the scrap-heap," and he waved his hand toward a heap of broken and twisted irons that I had not noticed before. "These were *once* God's promises, such as you teach your Sunday-school children. The few people that *now* keep saying them over know they are lies while the words are on their lips, only fit for that old 'scrap pile.'" As he pointed his thumb toward it I went up and gave the "scrap pile" a more careful scrutiny, and, "lo and behold," it was a pile of *whisky-bottles*, and not a heap of *God's* promises at all. While I was looking for something to rebuke and contradict him with, my eye caught on to one

promise among the rusty irons that was not tarnished at all, which shone like gold, and it read, "SHALL NOT THE JUDGE OF ALL THE EARTH DO RIGHT?" And then the pains and aches began to fade away, and I began to get a clear vision of God's loving mercy; of the wonderful progress that has been made in science and medicine; of the wonderful things that are constantly unfolding. And then came another thought, this other text I have used—"Be still, and know that I am God;" and then I fell into a sound and refreshing natural sleep; and when I awoke God was near to me once more, and, I hope, nearer and *dearer* than *ever* before.

Last night, before I went to sleep, with weak and feeble knees I bowed before my bed, and prayed that God would give me the rest I needed so much to fit me to dictate the Home papers on the morrow. The prayer was graciously answered. I awoke this morning from the most refreshing sleep that I have had since my illness; and before I had begun my work I thanked him again for having so graciously answered my prayer.

Now just a closing thought. Our State of Ohio is doing a most noble work in stamping out typhoid fever. I saw our physician take a tiny speck of blood from the tip of the finger of a grip-fever patient. This little speck of blood was sent to Columbus, Ohio, where the State would ascertain, free of charge, whether the patient has typhoid fever or typhoid symptoms. Any physician in the State can have this State aid absolutely free of charge in order to detect and stamp out typhoid before it gets a start.* In a like manner our State looks after the drinking-water of our people, and it has been doing a magnificent work in furnishing good and wholesome milk to our children and babies. May God be praised for this beneficent work. Now let me change the subject a little. I can remember when rows of whisky-bottles were in the windows of the saloons in almost every little town in Ohio, and in other States as well. If I remember correctly, at one time an enterprising newsdealer in the Columbus Union Depot had a long row of little pocket whisky-flasks, which he offered at only ten cents each; and every schoolboy who had a dime could get one. I do not know how long this thing continued. Our great doctors did not seem to think it worthy of their attention. The W. C. T. U. (God bless them!) made the first break and protest. Later the Anti-saloon League commenced to wage war; but the obstacles were so great, and we were so few in numbers, that the enemy pretty nearly overwhelmed us. I wonder if there is a saloon now in Ohio that dares put out a row of whisky-flasks visible from the street. I hardly think there is; and may God be praised for the progress we are making. But yet with all this progress, the President of the United States may, in his message, speak of typhoid fever, and urge pure drinking-water and good milk, yet, if I am right about it, he is even *now* so *manacled* by the rum power that he dare not even *mention* the pocket whisky-flasks made on purpose for our American schoolboys. Typhoid fever is a terrible thing. It is a disgrace to any neighborhood, and almost a disgrace to have it break out in any family. The fevers are all terrible things. I know a little more about it to-day than I ever did before; but, great heavens! what does typhoid fever amount to compared with the fever that comes from the pocket whisky-flask? *God hasten the day* when the flag of our nation *shall* be a "*stainless* flag."

*I have just clipped the following from the *Plain Dealer* of April 21:

Laboratories are being established over all the State for the examination of suspected cases of diphtheria, tuberculosis, typhoid fever, and rabies. It is the intention of the board to establish stations for the distribution of anti-toxin in every county in the State.

### BEEF JUICE.

It has occurred to me that perhaps a good many may want to know what I mean by "beef juice." I asked the nurse how she made it, and she said take any good round beefsteak, and cut it into strips about the size of your little finger. These are then broiled until the juice begins to show just a little. The meat is not by any means cooked. When it is broiled or heated up it is put into a little press, such as may be found in hardware stores. These presses are generally used for squeezing the juice from fruit; but any sort of press will answer to squeeze out the juice from the lean beef. When a patient is able to swallow finely ground beefsteak, of course it is not necessary to go to the trouble of expressing the juice in the way I have described. But this beef juice will be taken by the stomach, and appropriated, when the patient is too weak or too much nauseated to take any other food known. I think physicians will bear me out in this.

### "FLETCHERISM."

I suppose you have heard or seen something about it in the various periodicals. If you haven't, you want to get hold of any number of the *Christian Endeavor World*. Fletcherism is not particularly different from what Terry and some others have been teaching. It is a simple diet. Get rid of all your various side dishes; eat only one thing at a time, and not only chew it well but chew it "everlastingly." Eat either raw or cooked food, as nature or a natural appetite calls for; but be sure not to eat too much. In this way you will not only save half the expense that it has been costing you for food, but you will get more life and *better* life than you ever had before. May God be praised that such men as "Father Endeavorer Clark" and a host of other great and good men have come out in a mighty protest against the extravagant waste of food and loss of health and life that come from *overeating*. All hail Fletcherism, and any other "ism" that helps us to live as God intended we should live.

### EVERLASTING PUNISHMENT.

While I was dictating the part of the Home paper touching on man's future life, by some queer circumstance or design a tract was put in my hand entitled "Satan's First Lie; or, Man in Death." It is a poem of 30 pages; and whether you accept the doctrine of the good woman who gave us this poem or not, it will pay you to read it. The footnotes at the bottom of each page are quotations from the Bible, and these quotations all bear on the matter of eternal *life* or eternal *death*. This little book presents and holds out almost every thing the Bible has to say in regard to the matter. It is published by the Pacific Press Publishing Co., Mountain View, Cal., at the ridiculously low price of 2 cents. It belongs to the Bible Student's Library.